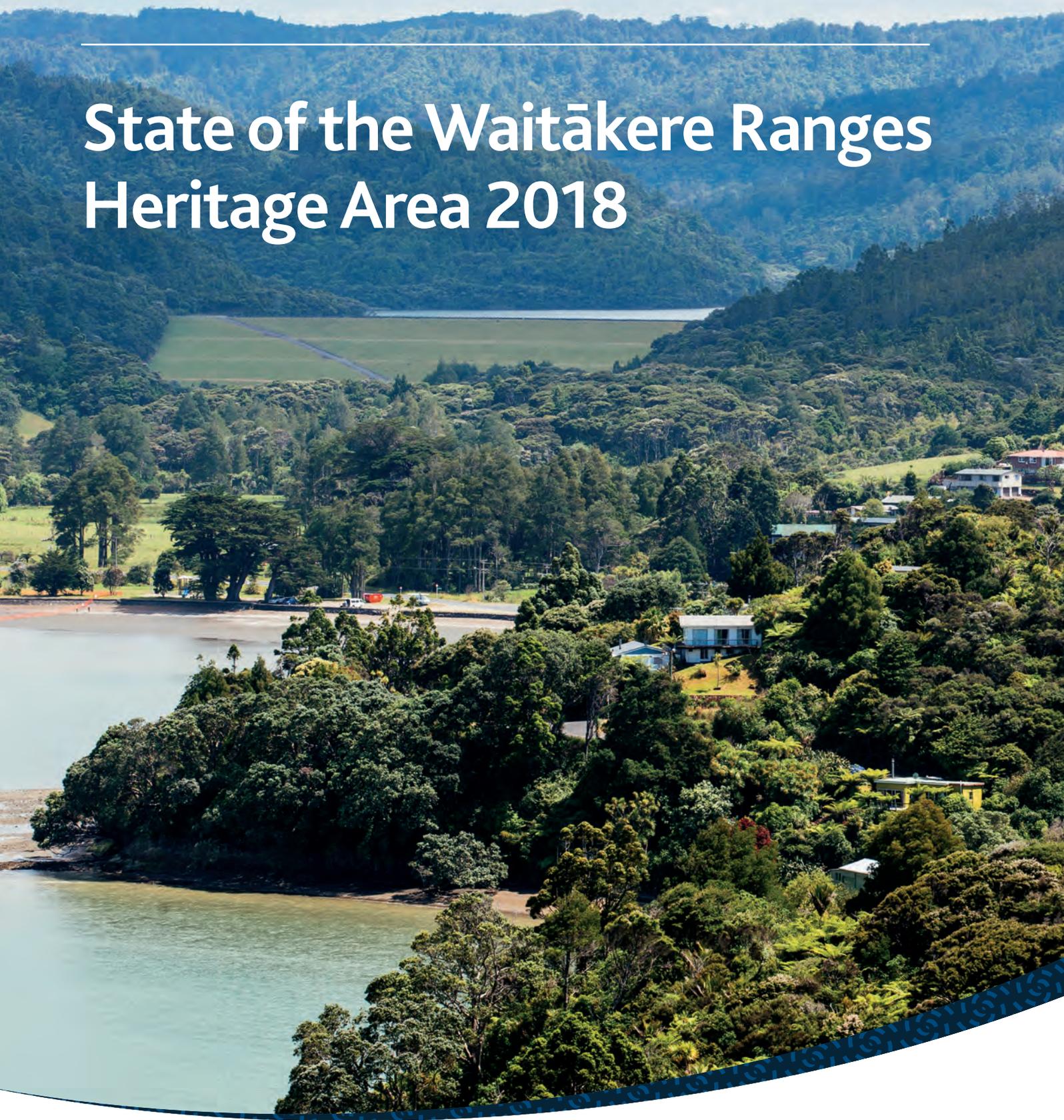


Te āhua o te Rohe o Te Ika
Whenua o Waitākere 2018

State of the Waitākere Ranges Heritage Area 2018



The Waitākere Ranges Heritage Area



He Mihi

**Ko Hikurangi te maunga
Ko Waitākere te awa.
Ko Te Au o te Whenua te tangata.
Ko Te Kawerau-a-Maki te iwi.**

Hikurangi is the mountain
Waitākere is the river
Te Au o te Whenua is the chief
Te Kawerau-a-Maki is the tribe

**Korōria ki te Atua
Maungārongo ki te whenua
Whakaaro pai ki ngā tāngata katoa**

Glory to God
Peace to the land
May good thoughts come to all

**I te tuatahi ka mihi ki a Kingi Tūheitia,
ki tōna hoa rangatira, a Atawhai me tā
rāua whānau e noho mai nei i runga i te
ahurewa o ōna mātua tūpuna, pai marire.**

Firstly, I greet King Tūheitia,
And his wife Atawhai and their family who are
descendants of royal ancestry, pai marire

**Ki ngā mate, koutou kua whetūrangitia,
kua mene ki te pō – haere, haere, haere.**

To the departed (dead), those who have
recently passed. Darkness has called upon
you. Go (once), go (twice), go (thrice)

**Mai i Te Mānukanuka o Hoturoa ki ngā wai
whakapapa pounamu o te Waitematā, he
reo mihi tānei kia koutou,**

From Te Mānukanuka o Hoturoa to the
pristine waters of the Waitematā, this greeting
to all.

**Nga Mana Whenua o tēnei takiwa, Ngati
Whatua me Te Kawerau a Maki. Ko koutou
e whakaruruhau nei i te Tāone Nui o
Tāmaki Makaurau – Ko te Te Wao-nui-a-
Tiriwa - tu te Ao, tu te Po - tu rangatira
mai.**

From the tribes of this region, Ngati Whatua,
Te Kawerau-a-Maki and Te Wao nui o Tiriwa
- stand by day, stand by night, stand proudly

**E kore e taea e te kupu te whakapuaki i te
mahana o te rā, te mākuku o te ua, me te
marietanga o te hau. Mā te kite, mā te
rongo, mā te whakaaro ka tau te kupu.**

There are no words to express the warmth of
the sun, the drizzle of the rain, and the
peaceful wind. With sight, with sound with
thoughts, words will appear.

“Ahakaoa he iti, he pounamu.”

“Though small, it is precious.”

He mihi poto engari he whakaaro nui.

Though a small greeting, many thoughts
appear

**Noho ora mai i raro i ngā manaakitanga o
te Runga Rawa**

Farewell and thanks to god almighty.

Aroha nui

(With deep affection)

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May 2018

Plans and Places; Planning North, West and Islands

Plans and Places would like to thank all those who have contributed to the preparation of this report. This includes Te Kawerau ā Maki, Ngāti Whātua, council departments, council-controlled organisations, Waitākere Ranges Local Board, external specialists and members of the public.

Foreword by Mayor Phil Goff



Auckland is renowned for its natural beauty and getting out into nature is part of our birth right as Aucklanders.

The Waitākere Ranges Heritage Area is one of Auckland's most special places. Forged from volcanic basalt over thousands of years, the area's outstanding and distinctive heritage features are a celebrated part of Auckland's identity.

The area is home to unique ecosystems and indigenous flora and fauna, with 542 species of native plant, 50 species of native bird, five indigenous reptile species, the long-tailed bat and the Hochstetter's frog found there.

The local, regional and national significance of the Waitākere Ranges is recognised by the Waitākere Ranges Heritage Act 2008. The Act responds to concerns about the effects of development within the area and aims to preserve the unique natural character and cultural heritage of the area.

It is now a decade since the Act was enacted and this is the second time we have reported on the state of the environment of the heritage area. This report has measured changes over the last five years (2013 – 2018) in the context of unprecedented growth for Auckland.

That growth has brought huge benefits to Auckland, delivering us the talent and investment we need to compete globally and making our city a more culturally rich place to live. At the same time, growth presents real challenges, particularly for our environment.

In the context of the Waitākere Ranges, that is felt most acutely with the continued spread of kauri dieback disease. Council is working with iwi and the local community to protect our kauri by restricting movements in the ranges, but more needs to be done. Council is committed to ensuring we invest to tackle this and other issues like pest management and pollution that are having a negative impact in the area. I expect to see a significant uplift in investment to address these challenges over the coming decade.

Through this report, Auckland Council recognises the stewardship of Te Kawerau ā Maki and Ngāti Whātua, as well as the local community who are committed to preserving our iconic Ranges and arresting the decline of our precious kauri from dieback disease.

We all recognise the importance of the Waitākere Ranges to Auckland and to New Zealand. By working together, we can ensure it is conserved and enhanced for the benefit of us, our children and our grandchildren.



Message from Waitākere Ranges Local Board Chair Greg Presland



2018 is the tenth anniversary of the Waitākere Ranges Heritage Area Act 2008 and this is the second monitoring report prepared under that Act. Ten years is a significant milestone and a good point to assess how we are doing, the progress we have made in achieving the objectives of the Act, and whether we are managing our heritage area so that the values of this special place, our taonga, remain for our children and grandchildren.

Denise Yates was chair of the local board when the first monitoring report was published, and an elected member when she passed way in early 2018. Denise's passion for the environment and communities of the heritage area were clear, and she had a keen interest in the outcomes of this report.

Denise expressed her wish that today we would find the integrity of the Waitākere Ranges Heritage Area protected and respected, despite the ravages of kauri dieback disease and the demands of an expanding Auckland. Pleasingly, this report shows that while the heritage area continues to face some big and important challenges, overall, the Act is making a difference.

We find that despite all efforts made so far kauri dieback disease continues to spread. This is a particularly local tragedy for a taonga of the heritage area and a national one in terms of our wider forest ecology. Auckland needs to make some tough decisions on what needs to be done to halt the further loss of kauri. The potential new threat of myrtle rust is also on our horizon.

This report gives us time to recognise the progress and achievements made towards meeting the objectives of the Act. This local board always strives to represent the values of the heritage area, and is very conscious of community action taken to hold the line against, for example, animal pests and weeds, and of council's role in empowering private landowners to do their bit. People are generally very proud to live in a heritage area, and that strength of feeling is growing.

This report underlines our collective responsibility to manage, monitor, protect and celebrate this special place. In another ten years I would like to find not only that we have added to the successes of today, but have risen to the long-term challenges that we face to ensure the vision for the heritage area is met.

Dedication to Waitākere Ranges Local Board Member Denise Yates

Waitākere Ranges Local Board Member Denise Yates



Waitākere Ranges Local Board member Denise Yates passed away in January 2018.

Denise lived in Huia, had a great love for the natural environment and communities of the heritage area, and was a passionate advocate for the Act.

Denise was the Chair of the Waitākere Ranges Local Board when the first monitoring report (Waitākere Ranges Heritage Area Monitoring Report June 2013) was produced and wrote the Chairperson's message for that report. Five years on Denise, along with her fellow local board members, had a keen interest in this monitoring report and in understanding the present state of the heritage area.

Sadly Denise will not be with us to celebrate the 10-year Anniversary of the Act and the release of this report.

This report is dedicated to Denise and to working towards fulfilling her vision (as expressed by her in the 2013 report) that:

'...despite the ravages of kauri dieback disease and the demands of an expanding Auckland, the integrity of the Waitākere Ranges Heritage Area will be protected and respected; the taonga will remain intact as the heart and lungs and spiritual backdrop for the Aucklanders of the future.'

Tangata whenua / Mana whenua

Te Kawerau ā Maki

Te Kawerau ā Maki are tangata whenua (people of the land) of Waitākere, who hold customary authority or mana whenua within west Auckland. Te Kawerau ā Maki maintain a separate identity, mana, tikanga (customs), rights and kaitiaki (guardianship) responsibilities to the lands, forest, natural resources and taonga in the Waitākere area.

Te Kawerau ā Maki has existed as a distinct tribal entity since the early 1600s when the ancestor Maki and his brother Mataahu and their people conquered and settled 'Te Ipu Kura ā Maki' (the Tāmaki Isthmus) and the wider area. Through ancestral links, and intermarriage with those earlier peoples occupying the Auckland area, Te Kawerau ā Maki have direct ancestral connections to all of the preceding tribal groups who occupied the area since human occupation began over 800 years ago. Te Kawerau are also descended from the more ancient Turehu who once lived within the forest.

The Waitākere region, and hence the heritage area, takes its name from a very significant rock feature located in the small bay just north of Ihumoana Island, Te Henga. It is so named because of the seas that sweep relentlessly over it. From this rock came the general name for the Te Kawerau ā Maki settlement in the lower Waitākere river valley, and one of the names for the river itself. To Te Kawerau ā Maki, the traditional name for the wider west Auckland area is Hikurangi, while the name for the huge forest that once covered the area is Te Wao nui ā Tiriwa – the great forest of Tiriwa.

Te Kawerau ā Maki ancestral associations with west Auckland are expressed in many different ways including whakapapa (genealogy), pūrākau (traditions), waiata (songs), and tohu or place-names and landmarks that cover all parts of the land and surrounding seas. Te Kawerau mana whenua in west Auckland is also symbolised by the many carved pou that have been erected throughout the region from Whatipu in the south to Te Awa Kotuku (Cascade Kauri Park) in the north. The many peaks extending down the Waitākere Ranges from Muriwai to the Manukau Harbour entrance became known as 'Nga Rau Pou ā Maki', or 'the many posts of Maki'.

Throughout inter-tribal skirmishes and despite European colonisation and the associated alienation from the land, Te Kawerau ā Maki have maintained their identity and relationship to Waitākere. The Te Kawerau ā Maki Claims Settlement Act 2015 saw the Crown apologise to the iwi for breaches of Te Tiriti o Waitangi (the Treaty) and saw the return of culturally significant lands to the iwi including at Te Henga, Parihoa, Muriwai, Opareira, and Wai Whauwhaupaku. Te Kawerau also have Statutory Acknowledgements over Whatipu Scientific Reserve, Waitākere River, Swanson Conservation Area, Henderson Valley Scenic Reserve, Taumaihi (part of Te Henga Recreational Reserve), Goldies Bush Scenic Reserve, Motutara Settlement Scenic Reserve, Motutara Domain (part Muriwai Beach Domain Recreation Reserve), Te Wai-o-Pareira (Henderson Creek),

and the coastal area of our rohe. Te Kawerau also have Statutory Acknowledgement and other co-management and co-governance opportunities within the area under the Waitākere Ranges Heritage Area Act 2008.



Detail from carving at Arataki Visitors Centre

Ngāti Whātua

Ngāti Whātua is an Auckland, Kaipara and Northland-based iwi with close ancestral ties to Te Kawerau ā Maki. The tribe has a relationship as mana whenua with Auckland Council, and its people continue to maintain their traditions, work in and contribute to all facets of their city. Ngāti Whātua have made use of the resources of, and resided in, the Waitākere Ranges Heritage area over about 400 years, although ancestral connections go back beyond that. Three particular episodes have been noted in a recent account (Paterson, 2009).

During the period of intense warfare in the late 1600s a punitive expedition by Ngāti Whātua down the west coast against Kawerau, known as Te Raupatu Tīhore (the 'Stripping Conquest') led to the seizure by the rangatira Kāwharu's taua of Waitākere pā at Ihumoana (Te Henga), Anawhata, Whakāri (Lion Rock) and Paratutai (at Whatipu).

In the mid 1700s conflict between Kiwi Tāmaki (ariki of the Waiohua confederation of Tāmaki) and Te Tāoū o Ngāti Whātua ranged across the wider region. The Titirangi area was a focal point and a major battle took place in the area between Paruroa (Big Muddy Creek) and what is now Scenic Drive, at which Ngāti Whātua were victorious.

Subsequently, in the early 1800s Ngāti Whātua from Kaipara were in intermittent conflict with their northern neighbours, Ngāpuhi and took refuge at times in the Waitākere Ranges. During this “musket wars” era, Apihai Te Kawau (Ngāti Whātua rangatira in Tāmaki) and his followers moved to Karangahape (named for a prominent tohunga of the Tainui waka)/Cornwallis in 1835, built a fortified pā and remained there until 1838.

Ngāti Whātua continue to make use of their traditional places and resources throughout the Auckland area today.

Mana whenua response to this report

Te Kawerau ā Maki and Ngāti Whātua are identified as the tangata whenua of the Waitākere Ranges Heritage Area in the Waitākere Ranges Heritage Area Act 2008 and were integral to its creation. Their ancestral history and connections of the Waitākere area are discussed in the section above.

In response to the findings of this report, the following statement was provided by Te Kawerau ā Maki and Ngāti Whātua. Subsequent to providing this statement in November 2017 Te Kawerau ā Maki placed a rāhui on the heritage area in response to the spread of kauri dieback disease and to protect against the further spread of this disease into the kauri forest which is taonga to Te Kawerau ā Maki.

**Statement of Te Kawerau ā Maki and Ngāti Whātua
regarding the
State of the Waitākere Ranges Heritage Area 2018**

Te Kawerau ā Maki and Ngāti Whātua are identified as the tangata whenua of the Waitākere Ranges Heritage Area within the Act, and were integral to its creation. Our status is explicitly noted in the Preamble and in sections 26, 29, 30 and 33 of the Act.

The purpose of the Act is primarily (in sections 3 and 8) to recognise the national significance of the heritage area, and to promote the protection and enhancement of its heritage features for present and future generations. Heritage features are identified as both natural heritage (e.g. indigenous ecosystems, natural landforms and landscapes, coastal areas, natural streams, quiet and dark skies setting, and the opportunity for wilderness experiences, recreation and relaxation) and cultural heritage (e.g. the

relationships of communities and tangata whenua to the heritage area, the archaeological and historic evidence of past human activity, and the distinctive local communities). An objective of the Act is also to recognise and avoid adverse potential or adverse cumulative effects.

Section 34 of the Act directs that the council must monitor the state of the environment, the progress made towards achieving the objectives, and funding impacts.

We note that much has been done over the past five years in pursuit of the purposes of the Act. These include: an increase in the total area of ecosystems protected in reserves; a dramatic decrease in the number of subdivisions and new development; an update survey of priority known archaeological sites; and initiating a programme to help address contamination in the west coast lagoons. However, there are many areas in need of improvement including: the spread of weeds; the alarming spread of kauri dieback; the ecological quality of lakes; a lack of funding proportionate to a nationally significant area; and the uncontrolled growth of tourism and recreational activity in sensitive areas.

From a tangata whenua perspective our key issues can be characterised broadly as:

- a lack of adequate and appropriate baseline data across a number of sectors
- inadequate measures, monitoring processes, co-ordination and implementation
- Te Kawerau ā Maki and Ngāti Whātua not being involved in the development of information baselines, measures, monitoring, management and governance decision-making.

Te Kawerau ā Maki and Ngāti Whātua view the 2018 review as an opportunity to identify blockages and set about planning for a programme to address these over the next five years. This is so that going forward we can better measure and drive success against the purposes of the Act.

High level recommendations Te Kawerau ā Maki and Ngāti Whātua make to Auckland Council and its Council Controlled Organisations are to:

1. Establish a co-governance and co-management steering group for the heritage area.
2. Co-develop a Waitākere strategic plan for the heritage area to better co-ordinate activities.
3. Identify baseline gaps, and re-design the measures and monitoring processes to align with both western science and tikanga Māori.
4. Progress and complete the two Deeds of Acknowledgement with Te Kawerau ā Maki and Ngāti Whātua.

Executive summary

This is the second five-year report prepared under section 34 of the Waitākere Ranges Heritage Area Act 2008 (the Act). This report compiles data about the heritage features within the heritage area. It goes on to determine whether there have been changes in the state of those heritage features (both improvement and decline). The report also reflects on the council's business which includes its requirements to meet the objectives of the Act.

Te Kawerau ā Maki and Ngāti Whātua Ōrākei are the mana whenua in the heritage area and both iwi played key roles in establishing the Act. The iwi continue to represent their mana whenua interests and exercise their kaitiakitanga in a wide range of forums. The heritage features are of particular significance for mana whenua, and collectively they are a taonga and maintain the heritage area's mauri. The places of significance to mana whenua are integral to the wellbeing of the heritage features of the Act.

Auckland Council, the Waitākere Ranges Local Board, Auckland Transport and Watercare Services Limited hold governance and stewardship roles. They are landowners of extensive parts of the heritage area, and have significant responsibility on a daily basis for managing assets, providing operational activities and services and infrastructure development and maintenance throughout the heritage area.

Between 2013 and 2017 an additional 98 hectares has been added to 'protected' land, (either regional park land, local reserve, or as covenanted land) 87 hectares of this land is dominated by indigenous vegetation and 34 hectares contains ecologically significant habitat. The heritage area is valued and used for recreation and wilderness experiences, particularly within the Waitākere Ranges Regional Park. These values have been enhanced by new public infrastructure e.g. Piha campground / public toilets, sections of the Little Muddy Creek walkway linking Tangiwai Reserve and Grendon Road, and the walkway between Rimutaka Place and Huia Road.

Community groups and landowners undertake extensive pest and weed control programmes, are actively involved in projects to manage kauri dieback disease and continue to play a significant role in protecting and restoring the ecosystems of the heritage area.

The loss of the kauri forest ecosystem is the biggest threat presently facing the heritage area. All kauri forest within the heritage area is at very high risk of being infected by kauri dieback disease. However the proportion of threatened animal and plant species with stable or increasing population sizes is assessed as likely to have increased between 2013 to 2017. Monitoring has enabled the identification and understanding of the roosting areas used by the long-tailed bat populations living within the heritage area.

The planning provisions and resource consent processes implemented between 2013 and 2017 have maintained the rural character of the eastern foothills and the natural landscape and landform values of the heritage area by reducing subdivision and ensuring that

development is undertaken in suitable locations in a suitable manner. The majority of changes to landform and landscapes that have occurred as a result of subdivision and development are in the coastal villages. Monitoring over the next five years will be important to determine whether development under the Auckland Unitary Plan provisions continues to be effective in protecting the landscape values of the heritage area, or whether the Auckland Unitary Plan provisions need to be reviewed.

There is evidence that there has been a significant increase in the level of recreational use of the heritage area between 2013 and 2017. There is growing concern that the level of use, unless appropriately managed, may be to the detriment of other heritage features, such as ecosystems, wilderness and historic heritage values.

Data on the use of the heritage area has been collected from a range of sources and is not always robust. More accurate and integrated information gathering is needed to assess infrastructure, funding and management requirements necessary to retain the heritage features. The challenges associated with managing kauri dieback disease has highlighted the need to better understand and manage the use of the heritage area.



Looking towards Waiatarua and the Scenic Drive ridgeline.

Overall conclusions

Heritage area communities – from strength to strength

The communities living within the heritage area continue to thrive and play an important role in contributing to its management. In particular this is through their advocacy and the provision of their time and labour, especially through volunteer services (for example fire, surf lifesaving, community facility support and services) weed and pest control, land management, restoration and protection, and supporting the vibrant artistic and cultural heritage of the area.

The passion and commitment of the numerous community groups in maintaining the features of the heritage area is fundamental to achieving the Act's objectives. For example the arts are well provided for, community and service organisations, educational facilities, resident and ratepayer groups, internet and social media forums, and sports clubs all grow and prosper. These combine so that the community feels close-knit, and people encounter each other regularly in different aspects of their life. Many residents are passionate about the heritage area, the preceding generations that have helped to shape it, the lifestyle it offers to them and their families today, and the responsibilities for the future that they all hold.

Baseline data – improvement available

While council has expanded its knowledge, it still has insufficient information and data for some topics to establish the baseline state of the environment (for example built and archaeological heritage and pest plant). This means that comprehensive reporting and subsequent decision-making about council operations in the heritage area is (in some cases) not based upon factual data that supports the response taken.

For some topics there is monitoring and data collection that has been initiated but is not currently available for reporting in this five-year period (for example dune systems). The five-year monitoring period established by the Act is considered to be too short to measure significant change in many ecosystems, but any significant changes in trends will become apparent in the next reporting period.

Monitoring is undertaken by council for a variety of purposes including operational assessments for departmental reporting and business planning, and outcome analysis for state of the environment reporting. Some of the monitoring for departmental purposes may not always be useful for or contribute to the depth and breadth of knowledge about the state of the environment. As part of the preparation of the 2023 Report, independent assessment of departments, and Council Controlled Organisations performance against their operational plans should occur.

Coordination of activities – opportunity available

There is a substantial amount of programme and project based work occurring across the heritage area. The council has progressed since amalgamation in terms of aligning work programmes and achieving more integrated outcomes. However integration across council and council-controlled organisations, iwi and the community (and its many groups) still has room for improvement because of the complexity and integrated nature of activities that occur in the heritage area. This warrants further consideration about whether a different decision-making model (including who is involved in those processes) would assist council to achieve the objectives of the Act.

Visitor pressure – a mixed blessing

Visitor numbers in the regional and local parks are substantially increasing. While more and more Aucklanders are enjoying the wonders of the heritage area, there is a growing concern that the level of recreational use, unless appropriately managed, may be to the detriment of other heritage features, such as ecosystems, wilderness, and historic heritage values.

The council provides many resources to manage day to day activities across the heritage area. This is complemented by significant volunteer effort. However the scale of visitor use of the heritage area leads to greater need for parks infrastructure and services for the visitors. While that infrastructure provides for visitor needs, it imposes increasing costs associated with construction, daily operations and maintenance.

Pest plants and animals – the battle continues, but are we winning?

Pest plants and animals are a major ongoing threat to the heritage area. A significant number of pest plant and animal control programmes have been undertaken by council, community groups and landowners. These are vital to help maintain the ecological values of the heritage area.

To monitor changes and the success of control programmes, data from additional monitoring sites is needed (areas adjoining the regional park and road corridors). The control of pest plants and animals is an ongoing challenge, particularly to fund and resource programmes at a level that will improve and restore the health of ecosystems. A substantial increase in funding through a natural environment targeted rate is being sought for biosecurity management in the council's Long-term Plan 2018-2028. This will determine the extent of pest plant and animal control programmes that can be undertaken within the heritage area over the next 10 years.

Subdivision and development – reducing, and a new planning framework emerges

Subdivision in the heritage area has shown a marked decline over the last five years. While fewer new land parcels are being created, there is continued residential development throughout the heritage area, as both historically and recently subdivided land parcels are built upon. While the Auckland Unitary Plan is mostly operative, it is too early to draw conclusions about how effective the new planning provisions are in terms of managing the heritage features of the heritage area.



Whatipu.

Report – detailed findings

1 Introduction

1.1 Purpose of the Waitākere Ranges Heritage Area Act 2008

The Waitākere Ranges Heritage Area Act 2008 established the Waitākere Ranges Heritage Area ('the heritage area') and has as its purpose (ss3(1)(a) and (b)) to:

- recognise the national, regional, and local significance of the Waitākere Ranges heritage area
- promote the protection and enhancement of its heritage features for present and future generations.

1.2 Monitoring progress in achieving the Act's objectives (s34)(1)(b))

The objectives in section 8 of the Act set out the management approach to be taken in protecting, restoring and enhancing the heritage area and its heritage features. These objectives are achieved through a range of mechanisms including Resource Management Act 1991 (RMA) plans, resource consents, biosecurity and conservation management activities, and by managing the Waitākere Ranges Regional Park. The extent to which these objectives are being met is discussed in the topics that report on the state of the heritage features. Each topic includes a section on 'suggestions for the future' which identifies future actions to consider undertaking to contribute to achieving the objectives.

1.3 Funding impact from activities undertaken to give effect to the Act (s34(1)(c))

Monitoring and reporting on the funding impacts arising from activities undertaken specifically to give effect to the Act is a requirement under section 34 of the Act.

Activities within the heritage area are mainly funded from council departments and council controlled organisations, but these funding amounts are not specifically identified in this report. These activities are funded from aggregated and region wide budgets, and form part of the council's and council controlled organisation's business as usual. It is currently too difficult to disaggregate those budgets to provide an accurate indication of the total expenditure by council and the council controlled organisations in the heritage area.

Having said that, activities that contribute to achieving the objectives of the Act cover operational expenditure, capital expenditure and staff time. Activities include (but are not limited to) policy advice, regional and local parks management, parks infrastructure construction and maintenance, biosecurity and biodiversity operations, community facilities

construction and maintenance, support for community initiatives, public events, environmental monitoring, public communications, resource management and pest plant and animal pest management. Some services that are delivered within the heritage area are contracted to third parties by the council and council controlled organisations. These contracts may also cover service delivery both within and outside the heritage area.

Activities that have been directly funded by the Waitākere Ranges Local Board during the period 2013 - 2018 are listed in Appendix 1. This funding is for activities that are undertaken only in the heritage area and seek to complement business as usual activities that specifically give effect to the Act.

Future funding for the heritage area will be identified in the council's Long-term Plan 2018-2028, mainly in aggregated budgets.



Huia Dam Road.

1.4 Who manages the heritage area

1.4.1 Mana whenua

Te Kawerau ā Maki and Ngāti Whātua are mana whenua in the heritage area. Their enduring exercise of kaitiakitanga continues to be incorporated into managing the heritage area. Since the 2013 Monitoring Report Te Kawerau ā Maki have concluded their Treaty of Waitangi settlement negotiations. That settlement was passed into legislation on 14 September 2015.

Deed of Acknowledgements between council and either Ngāti Whātua or Te Kawerau ā Maki are able to be made. The Act indicates that these acknowledge the particular historical, traditional, cultural or spiritual relationship of mana whenua with the heritage area (s29 of the Act). To date no Deed of Acknowledgement has been entered into with either iwi.

In response to this report Te Kawerau ā Maki and Ngāti Whātua are seeking that Deeds of Acknowledgement be developed.

1.4.2 Auckland Council and Council-Controlled Organisations

Auckland Council, Watercare Services Limited and Auckland Transport are key landowners. They have significant roles in managing assets, activities and infrastructure in the heritage area, particularly within the Waitākere Ranges Regional Park.

- **Auckland Council** is involved in a range of management and asset-owning roles which are discussed where appropriate in each of the topics.
- **Watercare Services Limited** has designated land, water supply and catchment functions and assets and activities. These are discussed in the Water Catchment and Supply topic.
- **Auckland Transport** activities in the road corridor are discussed where appropriate in the topics.
- **Auckland Tourism, Events and Economic Development** facilitates development of tourism and the economic opportunities connected to the visitor economy, including destinations within the heritage area. Data collection on visitors to the heritage area by Auckland Tourism, Events and Economic Development is discussed in the Recreational use of the heritage area topic.

1.4.3 Local communities and community groups

The communities living within the heritage area also play a critical role in managing it, particularly through weed and pest control, restoration and protection and supporting the vibrant artistic and cultural heritage of the area. The various community projects are discussed in both the Indigenous terrestrial and aquatic ecosystems and the People and communities topics.

1.5 Legislation, statutory plans and policy documents

A range of legislation, statutory plans and policy documents apply to and guide the management of the heritage area. A summary of these, and changes that have occurred since the 2013 Monitoring Report are outlined below.

1.5.1 Waitākere Ranges Heritage Area Act 2008

Heritage features and objectives

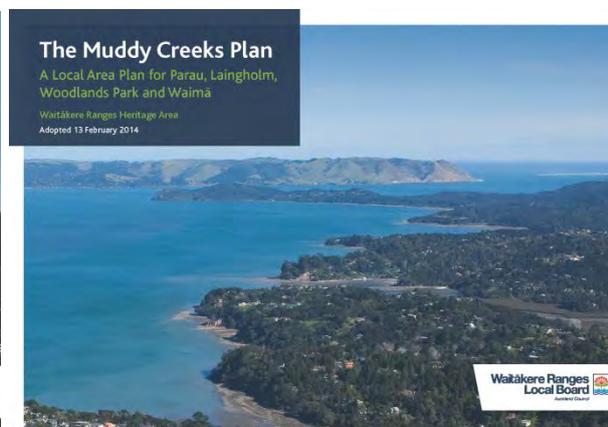
The heritage features are listed in section 7 and the objectives in section 8 of the Act. These sections of the Act are in Appendix 2.

Regional Parks Management Plan 2010

A management plan for the Waitākere Ranges Regional Park is required and must be reviewed every 10 years under sections 19 and 20 of the Act. The present Regional Parks Management Plan (RPMP) was developed within the framework of the Act and was adopted in August 2010. It includes objectives and policies relevant across all regional parks in addition to a section specifically for the Waitākere Ranges Regional Park. It is scheduled for review in 2020.

Local area plans

Local area plans (LAPs) may be prepared to promote the purpose of the Act. Local area plans for the Muddy Creeks and Te Henga / Bethells Beach and the Waitākere River Valley have been adopted since the 2013 Report.



Duty to monitor and report

Section 34(1) (a), (b) and (c) of the Act requires the Council, at five yearly intervals, to monitor and report on:

- the state of the environment of the heritage area
- the progress made towards achieving the objectives of the Act
- the funding impact arising from activities to be undertaken specifically to give effect to the Act.

This is the second five-yearly report prepared under the Act. The first report, the Waitākere Ranges Heritage Monitoring Report (the 2013 Report) was released in June 2013 and had two parts:

- Volume 1: Summary of Findings
- Volume 2: Detailed results - June 2013 (the 2013 Report).

1.5.2 National Policy Statements and Directions

New Zealand Coastal Policy Statement 2010

This has been given effect through the Auckland Unitary Plan provisions relating to the coastal environment. The Coastal Policy Statement has particular application in the heritage area via overlays such as the Significant Ecological Area Marine, Outstanding Natural Character, High Natural Character, Outstanding Natural Landscape and Outstanding Natural Features.



Looking south towards Pararaha Bay showing dune lakes and wetlands of Whatipu. This area has a range of significant natural values and is included within the Outstanding Natural Character, Outstanding Natural Landscape, Outstanding Natural Features and Significant Ecological Areas Overlays in the Auckland Unitary Plan.

National Policy Statement for Freshwater Management 2014

This sets out the objectives and policies for freshwater management under the RMA. Freshwater is an intrinsic part of the heritage area and the monitoring of water quality and ecology is discussed in the Terrestrial and aquatic ecosystems topic and the water catchment and supply topic.

National Policy Direction of Pest Management 2015

This has required council to review its Regional Pest Management Plan 2007, to give effect to the new national policy direction. Pest plant and animal management is discussed in the Terrestrial and aquatic ecosystems topic.

1.5.3 Resource Management Act 1991

Changes to the management of trees

Section 76 of the RMA was amended in 2013 to remove district plan rules that protected categories of trees (for example native trees over a certain height/diameter) in urban areas (urban environment allotments)¹.

¹ The RMA includes a definition of 'urban areas' (urban environment allotments). See sections 76(4A) – (4D). Note the heritage area includes both urban and non-urban areas.

This means that to protect any trees in ‘urban areas’ they need to be included in a schedule or listed in a district plan. In the Auckland Unitary Plan trees are protected through various overlays including the Notable Tree Overlay (114 trees or groups of trees in the heritage area), Significant Ecological Area Overlay, Outstanding Natural Landscape Overlay, Outstanding Natural Character Overlay, or the High Natural Character Overlay. Some trees and indigenous vegetation are protected within 20 metres of Mean High Water Springs and through the Trees in open space zones and Trees in roads provisions.

As a result of the 2013 RMA changes to tree protection rules, the former Waitākere City Council initiated Plan Change 41. This preceded the Auckland Unitary Plan and resulted in an additional 62 trees (or groups of trees) being included in the Heritage Vegetation schedule of the Auckland Council District Plan – Operative Waitākere Section 2003 (Waitākere City District Plan).

Auckland Unitary Plan²

At the time the 2013 Report was prepared, the Auckland Regional Policy Statement, Auckland Regional Plans and Auckland Council District Plan – Operative Rodney Section (2011) and Waitākere City District Plan provisions applied to the heritage area. These plans have been replaced by the Auckland Unitary Plan which is required to give effect to the Act.

The Auckland Unitary Plan has introduced a new plan structure that differs from the previous district plans. The heritage area is managed by the Regional Policy Statement, zones, overlays, Auckland-wide rules and precincts.

Section B4.4 of the Auckland Unitary Plan sets out the Regional Policy Statement which contains the following Waitākere Ranges Heritage Area objectives and policies:

- provide for future use and development, including relocation of the rural urban boundary and recognise the need to protect the heritage area and its heritage features
- recognise the significance of the Waitākere Ranges to the natural character, environmental quality, economic, social and amenity values of Auckland.

The Auckland Unitary Plan also contains a number of overlays that control the use, development and protection of the natural and physical resources that cross multiple property boundaries and zones. A number of these overlays give effect to the New Zealand Coastal Policy Statement and other national policy statements, and to section 6 RMA matters. These are applicable where appropriate in the heritage area. Much of the heritage area has high or outstanding ecological, landscape and natural character values, with many of these values overlapping with the regional park. These are identified in overlays including:

- Significant Ecological Area – terrestrial and marine Overlay

² The Auckland Unitary Plan became ‘Operative in part’ 15 November 2016.

- Outstanding Natural Character Overlay and High Natural Character – coastal environment Overlay
- Outstanding Natural Landscape Overlay
- Outstanding Natural Features Overlay.

Other overlays that apply to the heritage area include:

- Ridgeline Protection Overlay
- Wetland Management Areas Overlay
- Notable Trees Overlay
- Historic Heritage Overlay.

In addition to overlay provisions, land within the heritage area is managed by a number of zones. The Rural – Waitākere Ranges and Rural – Waitākere Foothills Zones are specific to the heritage area. All other zones within the heritage area are the zones that are applied across Auckland.

Four precincts apply in the heritage area allowing for particular management of each precinct in addition to zone provisions. These are the Wainamu Precinct, the Te Henga Precinct, Bethells Precinct and the Oratia Village Precinct. Precincts contain plan provisions that are specifically tailored to manage the unique resources within them.

There is presently one Environment Court appeal against the council's decisions on the Auckland Unitary Plan that is unresolved. This relates to the removal of the prohibited activity status for subdivisions when the subdivision proposal exceeds the allocation available in the Auckland Unitary Plan. This appeal is expected to be resolved by June 2018. Once operative, the effectiveness of the Auckland Unitary Plan provisions will be monitored over the next five years to see how their application contributes to achieving the objectives of the Act.

Designations

There are a number of designations that apply in parts of the heritage area. The two main ones are discussed below.

A Regional Park designation (418) applies to the Waitākere Ranges Regional Park. The purpose of the designation is for recreational use, including the ongoing operation and maintenance of trails and visitor infrastructure for informal outdoor recreation activities, and for the conservation of natural and cultural values. The designation includes a condition which sets out the works, and rules that apply to those works that are permitted in the regional park without the need for an outline plan of works (which is similar to a resource consent). This is discussed further in Section 4: Recreational use of the heritage area topic and Section 7: Historic heritage and scheduled trees topic.

A number of Watercare designations apply to large parts of the heritage area. This includes land that is also within the regional park and is used for water supply purposes. In 2016 and 2017 Watercare has consulted on proposals to upgrade their water treatment plant at Huia. These matters are discussed further in Section 8: Water catchment and supply topic.



Lower Nihotupu Reservoir, Huia. This is a Watercare designation for water supply purposes.

1.5.4 Local Government (Auckland Council) Amendment Act 2009

Auckland Plan

The Auckland Plan is a requirement of the 2009 Amendment Act and it guides Auckland's future over the next 30 years. The first Auckland Plan was adopted in 2012, and it is currently undergoing a 'refresh'. A revised draft Auckland Plan was approved for consultation which is expected to be undertaken February/March 2018.

Section 18(2) of the LGAA Act requires council to ensure that the provisions of the Auckland (spatial) plan are not inconsistent with the purpose or objectives of the Waitākere Ranges Heritage Area Act 2008.

1.5.5 Local Government Act 2002

The council's Long-term Plan and Annual Plans determine the funding for activities including those proposed by local boards, and council departments. The council will

finalise the next long-term plan in June 2018. Key matters that will require funding to give effect to the Act are highlighted in this report.

Local Board Plan

Since the 2013 report, the Waitākere Ranges Local Board approved their Local Board Plans in 2014 and 2017. The 2017 Waitākere Ranges Local Board Plan includes two outcomes relating to the heritage area:



Outcome 1: People actively protect the Waitākere Ranges Heritage Area

The Waitākere Ranges Heritage Area is recognised as a taonga for the people of Auckland.

Outcome 2: Our unique natural habitats are protected and enhanced

Local communities and the council work together to live sustainably and look after the environment.

1.5.6 Reserves Act 1977

The local reserves within the heritage area are subject to the Reserves Act 1977.

1.5.7 Biosecurity Act 1993

The Biosecurity Act 1993 enables the council to undertake a range of pest management programmes and to prepare a Regional Pest Management Plan. The council is reviewing its Regional Pest Management Plan 2007 to give effect to the National Policy Direction of Pest Management 2015. At the time of writing, the council has adopted a proposed Regional Pest Management Plan for public consultation. This may be adopted in late 2018, subject to the extent of changes required as a result of public submissions and budget decisions.

The proposed Regional Pest Management Plan takes an outcome-focussed approach to managing pests in the region. Of significance for management of the heritage area is the inclusion of a site-led programme for pest plants and animals on council parkland containing Significant Ecological Areas. This programme contains enforcement rules for several pest plant species in a 500m buffer around all parkland containing Significant Ecological Areas. This buffer encompasses many of the settlements in the heritage area (e.g. Huia, Piha).

An Auckland Weed Management Policy for parks and open spaces (including CCO roles) was released in August 2013. The Waitākere Ranges Strategic Weed Management Plan was released in June 2015.

Biosecurity Act 1993 – kauri dieback disease

Kauri dieback disease is an “Unwanted Organism” under the Biosecurity Act 1993 and its movement is restricted under legislation. The council has released the Kauri Dieback Report 2017: This is an investigation into the distribution of kauri dieback, and implications for its future management within the Waitākere Ranges Regional Park.



Phytosanitary station at Falls Road carpark, October 2017.

1.5.8 Heritage New Zealand Pouhere Taonga Act 2014

All pre-1900 archaeological sites are protected through this Act, whether they are recorded or not. An authority from Heritage New Zealand must be obtained before any pre-1900 archaeological site can be modified or destroyed.

Heritage New Zealand is also required to keep the New Zealand Heritage List/Rārangi Kōrero. The purpose of this list is to provide information. It does not, in itself, place restrictions on development or use of a historic heritage place.



Colin McCahon House in Titirangi is on the New Zealand Heritage List/Rārangi. (Source: DPA Architects)

1.6 Changes in Auckland's population and visitor numbers since 2012

Since 2012 there has been a significant increase in Auckland's population. At the time the 2013 report was being prepared the Statistics New Zealand website noted that ³New Zealand experienced a net outflow of 3,200 migrants during the June 2012 year, compared with a net inflow of 3,900 in 2011. This is compared to a record 72,402 net migrants arriving in New Zealand in the year to July 2017, 36,753 of which settled in Auckland meaning the city received at least 700 new migrants each week. Auckland had an estimated resident population of 1,507,600 at 30 June 2012. At 30 June 2017 (provisional) Auckland's population was estimated at 1.66 million.

Tourism has also experienced rapid growth. In 2012 there were 2,635,726⁴ visitor arrivals to New Zealand compared to 3,734,000 in 2017; a 7 per cent increase from 2016. The Ministry of Business, Innovation and Employment forecasts 4.9 million visitor arrivals (4.8 per cent growth per annum), by 2023. China is expected to become New Zealand's largest tourism market and to contribute 37 per cent of total international visitor growth.⁵

The heritage area's close proximity to the rapidly growing city, and its popularity as a destination for 'wilderness and beach experiences' for both local and international visitors has resulted in a significant increase in the level of recreational use since 2012. The data available for this report indicates that the increased level of use is having an impact on heritage features. Robust data on the use of the heritage area is needed to measure

³ http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/demographic-trends-2012/international%20travel%20and%20migration.aspx - statistics New Zealand

⁴ http://archive.stats.govt.nz/browse_for_stats/population/Migration/international-visitor-arrivals-jun-12.aspx

⁵ Ministry of Business, Innovation and Employment; New Zealand Tourism Forecasts 2017-2023
<http://www.mbie.govt.nz/info-services/sectors-industries/tourism/tourism-research-data/international-tourism-forecasts/documents-image-library/forecasts-2017-report-final.pdf>

changes and assess the impacts of activities on heritage features for the State of the Waitākere Ranges Heritage Area 2023 report.

1.7 Data collection and the relationship between the 2013 Monitoring Report and this report

The topics in this report are generally based on the topics in the 2013 Report (Volume 2). The topic names and content have been changed to reflect the references to heritage features and their order in section 7(2) of the Act.

New topics have been included in this report in response to issues that have emerged since 2013, namely:

- coastal lagoons and water quality (included in the Indigenous terrestrial and aquatic ecosystems topic)
- darkness of the night sky (included in the Natural landforms, landscapes and the night sky topic)
- notable trees (included in the Historic heritage and scheduled trees topic)
- water catchment and supply.

For the new topics, where past data is available, it has been included and will be used to measure changes in the future. Where there is no past data, the indicators in this report will be used to measure changes for the next five-year review.



Foster Bay.

The information and data used in this report has been drawn from a number of sources and the accuracy of data varies between topics. In particular the resource consent data used for monitoring analysis is indicative, as it is currently difficult to extract exact quantitative data. This is complicated by the planning provisions that have applied to the heritage area during this reporting period being in transition from the legacy Waitākere District Plan to the Auckland Unitary Plan Operative in Part. In addition, in respect of data relating to tree and vegetation clearance during this monitoring period, the amendment of section 76 of the Resource Management Act that removed district plan rules that protected categories of trees (for example native trees over a certain height/diameter) in urban areas (urban environment allotments), came into effect. In this context, while all attempts have been made to obtain accurate data across topics, in some cases the statistics are used to indicate a trend, rather than representing total statistical accuracy.

While particular heritage features identified in the Act are discussed within each topic, the different topics inter-relate with each other and the report needs to be read as a whole. Cross-references are made between topics to assist readers to achieve a complete understanding to the state of the heritage area.

This report includes discussion on some areas and matters that are directly adjacent to the heritage area, and where they are directly affected by the heritage area. This includes reference to the Matuku Link, a 37 hectare reserve that forms a vital connection to eco-restoration projects within the heritage area such as Ark in the Park and Habitat Te Henga, and to the water quality monitoring of beaches adjoining the heritage area.

The relationship between the topics and content of the 2013 Report and this report are shown below in Figure 1. An update on the progress towards achieving the recommendations for future monitoring from the 2013 Monitoring Report can be found in Appendix 2.

Figure 1: Relationship of 2013 Monitoring Report topics with the 2018 report topics and topic content



1.8 Public feedback for this report

The Waitākere Ranges Local Board held a public meeting on 15 June 2017 to provide the public with an opportunity to discuss progress in achieving the objectives of the Act and to raise any emerging issues needing investigation.

Most of the feedback related to specific topics e.g. kauri dieback, weeds, trees, resource consents. However, one of the main concerns raised was council's (including council-controlled organisations) management of its assets, and decisions made through the resource consenting process. For a full list of feedback received see Appendix 4. Individual topics may also discuss feedback specific to that topic.

In addition to the feedback received at the meeting, the Oratia Heritage Society also provided written feedback. The main themes of this feedback include:

- the need for better protection against inappropriate public works in the heritage area (with specific reference to the proposed Watercare water treatment plant that was initially proposed in Oratia)
- the need for a design guide for public works within the heritage area
- funding and implementation of the local area plans
- continued support for weed and pest animal management.

As part of council's 'business as usual' activities, it receives feedback and engages with communities about many of the issues and information outlined in this report. This has also informed and assisted the preparation of this report.



Looking from a prominent ridgeline in the Waitākere Ranges, across the eastern foothills towards central Auckland.

2 Topic: Indigenous terrestrial and aquatic ecosystems

2.1 What is included in this topic

The 'Ecosystems and Ecosystem Services' topic in the 2013 Monitoring Report is referred to as the 'Indigenous terrestrial and aquatic ecosystems' topic in this report. This change reflects the reference in section 7(2) (a) of the Act to indigenous terrestrial and aquatic ecosystems as heritage features. Figure 1 above shows the relationship and content of the topics in the 2013 Monitoring Report with the topics in the 2018 report.

This section reports on the state of indigenous terrestrial and aquatic ecosystems by assessing the health of key ecosystem features (such as vegetation, threatened species, protected areas, fauna and water quality) and the threats to them (such as kauri dieback, pest plants and animals and catchment activities).

A new section has been included in this topic on water quality in coastal lagoons (within the heritage area) and beaches adjacent to the heritage area.

2.2 Key findings

Relevant heritage features (section 7 of the Act): 2(a), (c), (d), (g)

Summary – state of terrestrial and aquatic ecosystems

- An additional 98 hectares of 'protected' land has been added (either as regional park land, local reserve, or as covenanted land); 87 hectares of this land is dominated by indigenous vegetation and 34 hectares contains ecologically significant indigenous habitat.
- The proportion of threatened animal and plant species with stable or increasing population sizes is likely to have increased between 2012 and 2017.
- Key roosting sites of the long-tailed bat within the heritage area have been identified.
- A diverse range of ecosystems have been identified (as Biodiversity Focus Areas) to ensure their long-term retention and to focus pest plant and animal control and restoration activities.
- Pest plants and animals are a major threat to the terrestrial and aquatic ecosystems of the heritage area. Ongoing pest plant and animal control is required at a level that, at a minimum, retains the biodiversity and ecosystem values of the heritage area.
- The council and the Waitākere Ranges Local Board continue to fund and undertake programmes aimed at retaining the ecosystems of the heritage area.
- Community groups and landowners continue to play an important and significant role in protecting and restoring the ecosystems of the heritage area through ongoing pest plant and animal control, restoration activities and programmes to manage kauri dieback disease.
- Kauri dieback disease presents the most significant threat to kauri forest ecosystem of

the heritage area; all kauri forest within the heritage area is now considered to be at very high risk of infection and there is currently no proven method to combat the disease or its spread.

- Mature (~1000 year old) kauri trees are the preferred roosting sites of the long-tailed bat, of which only small fragmented pockets remain, and these are threatened by kauri dieback disease.
- The water quality of many coastal lagoons and beaches adjoining the heritage area is degraded and not safe for swimming; failing septic tanks been identified as the main contributing source.

Progress made towards achieving the objectives:

- Additions to the extent of land protected in reserves are positive gains in achieving the ecosystem and recreational objectives of the Act.
- The council and community initiatives relating to weed and animal pest control and restoration activities continue to make a vital contribution towards achieving the objectives of the Act in maintaining the significant values of the ecosystems of the heritage area.
- Overall, aside from the significant threat presented to forest ecosystems across the heritage area by the spread of kauri dieback disease, monitoring results indicate that the biodiversity within the heritage area has been retained over the past five years.

2.3 What we measure changes against

Environmental indicators are used to:

- measure the state of the natural environment of the heritage area
- determine the threats and changes to the environment
- provide an overview of the environmental management activities undertaken by the local community and the council.

The indicators used in the 2013 Monitoring Report have been used as the baseline for measuring changes in terrestrial and aquatic ecosystems between 2012 and 2017.

Between 2012 and 2017 there have been changes in the data collected by the council namely:

- monitoring pest animals in the forest plot network across the region (including the heritage area) was stopped in 2015 due to funding constraints but is intended to be reinstated during the 2018 to 2023 period
- monitoring of residual possum catch undertaken as part of the biosecurity monitoring has been undertaken
- regular, plot-based forest monitoring by the council within Ark in the Park has been discontinued (as forest health indicators show the value of forest to be very high and relatively secure from most weed and pest threats) and as there is ongoing extensive

monitoring by community groups within Ark in the Park (the council is prioritising data collection for more threatened or less understood ecosystems)

- monitoring of the Te Henga / Bethells Beach wetland has increased
- monitoring of the dune systems at multiple locations along the west coast commenced in 2017
- monitoring of critically threatened coastal turf ecosystems commenced in 2016.

The council's environmental monitoring programmes⁶ are designed to detect relatively large-scale changes in environmental indicators over a longer time span than five yearly reporting (i.e. in the order of over a period of 20-30 years) to robustly establish numerical trends. Numerical data for a number of indicators was not available for this report. The summarised results and data status for each of the 52 indicators used in the 2013 Monitoring Report is contained in Appendix 5. Where no trend was recorded this is because more recent data was not available at the time of writing this report. Change was detected in seven out of the 27 indicators for which there was data. A summary of the results and trends are shown below in Table 1.

Table 1: Summary of changes measured from the indicators used in the 2013 Monitoring Report

Summary of changes measured from the indicators used in the 2013 Monitoring Report		
Number of Indicators (from the 52 indicators in the 2013 Monitoring Report. Refer to Appendix 5 for details on the indicators)	Indicator change 2012 - 2017	Summary of change/reason
25	No data available – (mainly relating to extent of vegetation/habitat loss)	High resolution aerial imagery and Lidar data has recently been obtained for the heritage area, but analysis of this information was not available at the time of preparing this report.
2	No trend data (2017	Data available 2017: proportion of threatened fauna and flora species under active conservation

⁶ Landers, Todd J, Bishop, Craig D, Holland, Kristi R, Lawrence, Grant R and Waipara, Nick W (2018). *Changes in indigenous ecosystems and the environment within the boundary of the Waitākere Ranges Heritage Area Act 2008: 2012-2017 report. Auckland Council technical report, TR2018/002*

	baseline)	management
18	No change	Quality and management of biodiversity has remained static (although indicators measure large-scale rather than small-scale change). Reflects large proportion of high biodiversity areas are within the Waitākere Ranges Regional Park.
4	Positive change	3 indicators relating to percentage increase in total area of ecosystems protected in reserves has increased 1 indicator shows an improvement in pest animal management
3	Negative change	1 indicator relating to weed management shows a downward trend 1 indicator relating to spatial extent of kauri dieback shows a downward trend 1 indicator relating to the ecological quality of lakes shows a downward trend

Further monitoring and data collection, since the 2013 Monitoring Report, has provided better information on the location and condition of threatened species and ecosystems and in identifying sites with high biodiversity values.

2.4 Terrestrial ecosystems

2.4.1 Vegetation changes between 2013 and 2018

The heritage area incorporates approximately 27,000 hectares of land collectively comprising around 21,200 hectares of native habitat. This is one of the largest blocks of continuous indigenous vegetation remaining in Auckland.

Four dominant ecosystems comprise more than 87 per cent of all the native ecosystems within the heritage area, namely;

- 45 per cent kauri-podocarp-broadleaf forest
- 17 per cent mānuka-kānuka scrub
- 13 per cent broadleaf scrub and forest
- 12 per cent kānuka scrub and forest.

Six native ecosystems that include more uncommon forest types, dune land and cliff ecosystems, comprise 1-3 per cent of the total area of native habitat. A mix of rare forest types and wetland ecosystems comprise less than 1 per cent of the total area.



Image on left: Kānuka-mānuka scrub. **Image on right:** Wetland (Whatipu Scientific Reserve).

The regional park (approximately 18,000 hectares) contains 75 per cent of the indigenous vegetation cover within the heritage area, with approximately 6,800 hectares of the park designated for water catchment purposes. The regional park incorporates the Whatipu Scientific Reserve (Gazetted in 2002 under the Reserves Act 1977). The reserve is owned by the Department of Conservation and is vested with the council for its management. Whatipu Scientific Reserve was gazetted for its range of nationally significant values that include:

- geological values from the unique associations of landforms e.g. rock platforms, caves, and sand plains
- ecological values associated with its range of habitats for nationally threatened plants and animals, including the connected wetlands forming the largest wetland system in the region
- ecological values of the sand plains that support native herbs that are unique in the Auckland Region and the only place known in the region for three plant species e.g. *Eleocharis neo-zelandica*⁷, *Schoenus nitens* and *Schoenus concinnus*.

⁷ *Eleocharis neozelandica* was found in 1999 on Great Barrier Island (AK 236524) but has since disappeared.



Whatipu Scientific Reserve.

The vegetation within the heritage area is particularly significant as it retains uninterrupted sequences of indigenous vegetation graduating from the coast (dunes, lagoons and wetlands) to the inland hills (mānuka, kānuka and broad-leaved scrub) up into the kauri and podocarp forest of the ranges. This diverse range of vegetation provides an extensive habitat for a wide range of indigenous plants, birds, reptiles, and insects.

The conclusion of the 2013 Monitoring Report⁸ was that the level of change in terrestrial vegetation was small. It is likely that this level of change has continued and that the biodiversity and environmental effects from vegetation changes between 2012 and 2017 are minimal.

Suggestions for the future: vegetation changes 2018 to 2023

The data used to assess the extent of change in vegetation cover for the 2013 Monitoring Report was based on the digital New Zealand Land-cover Database map of vegetation types derived from remote sensing satellite images. This map shows changes at a minimum scale of approximately one hectare and is suited for showing larger scale changes in vegetation cover, rather than detailed assessments of vegetation change.

High resolution aerial imagery and Lidar data has recently been obtained for the heritage area, but analysis of this information was not available at the time of preparing this report. A new building footprint and impermeable surface layer is also being developed. Once this data is available an interim technical report will be prepared and will be used for measuring vegetation changes between 2018 and 2023.

2.4.2 Ecosystem changes between 2013 and 2018 and Biodiversity Focus Areas

Out of 36 regional ecosystem types, 28 were found within the heritage area, collectively covering approximately 21,200 hectares.

⁸ Pg 37 Waitākere Ranges Heritage Area Monitoring Report Volume 2 June 2013

Fifteen of these ecosystems were assessed as either 'critically endangered' or 'endangered' (refer to Appendix 6). Collectively the endangered ecosystems comprise approximately 53 per cent of the total area of native ecosystems.

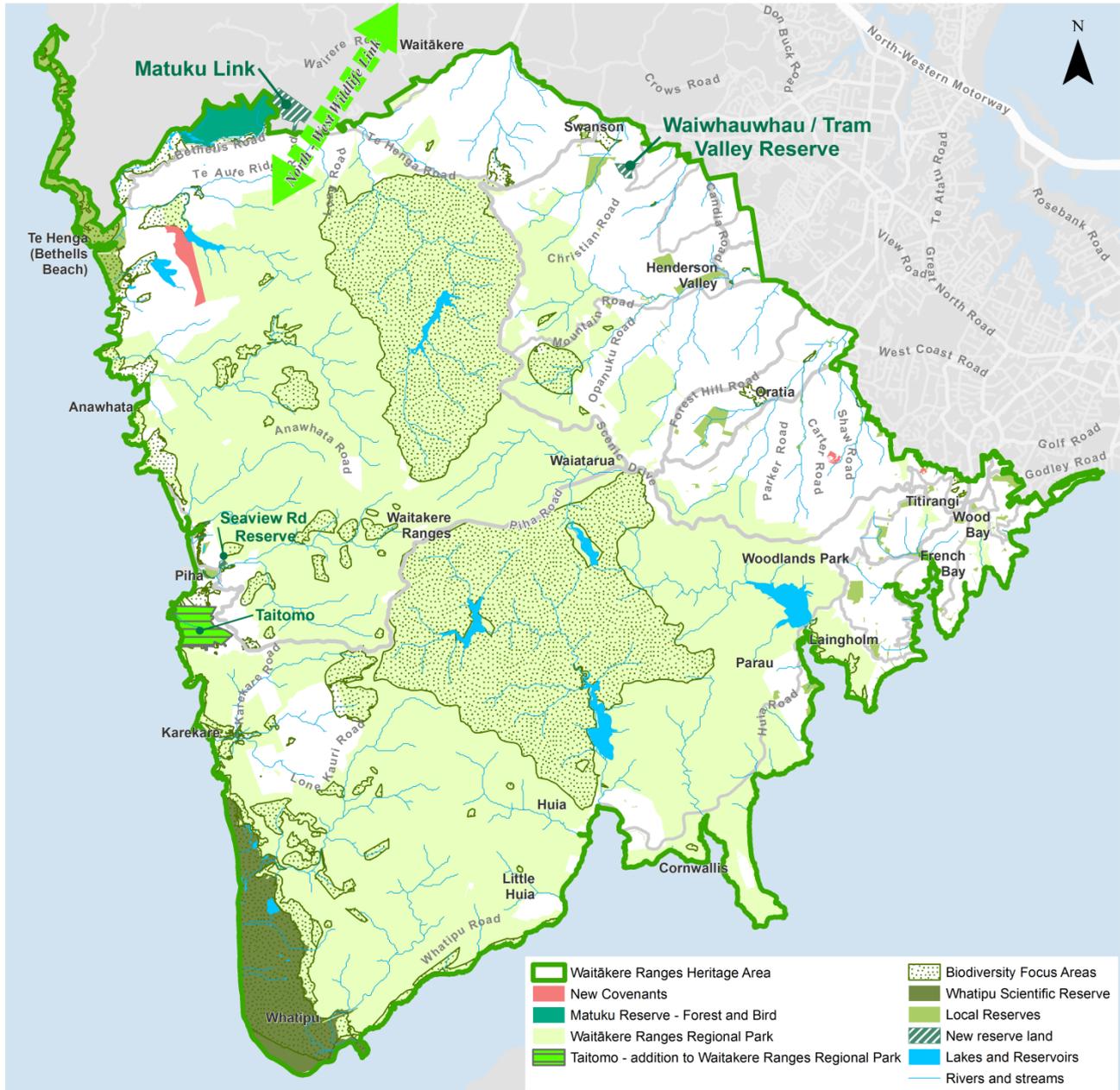
To ensure functioning examples of all of Auckland's original ecosystems in the region are retained over the next 50 years, areas of indigenous vegetation were identified using a methodology developed by the Department of Conservation (Zonation). Using zonation software, areas are ranked by comparison against each other based on their ecosystem type, condition, proximity to other natural areas and land tenure. The map produced through this process identifies priority areas for management known as 'Biodiversity Focus Areas'. Refer to Map 1: New reserves, covenants and Biodiversity Focus Areas.

The identification of Biodiversity Focus Areas will help:

- prioritise restoration work on council-managed land
- support and inform conservation efforts by the council, community groups and landowners to maximise biodiversity benefits
- develop shared conservation priorities with other agencies like Department of Conservation.

Two-thirds of Biodiversity Focus Areas in the heritage area are on public land (regional and local parks plus conservation estate) with the remaining one third occurring on private land. An engagement and funding programme is currently being developed for Biodiversity Focus Areas on private land. The restoration activities undertaken within the Biodiversity Focus Areas identified in the heritage area will be reported in the State of the Waitākere Ranges Heritage Area 2023 report.

Map 1: New reserves, covenants and Biodiversity Focus Areas



2.4.3 Protected area changes between 2013 and 2018

Changes in the extent of protected areas was determined by comparing the 2017 GIS records with the 2012 records of all reserves, parks and covenants within the heritage area. This analysis shows a significant increase in protected areas, namely;

- 78 hectares of land between Karekare and Piha in 2014, known as ‘the Gap’ which now forms part of the regional park (known as Taitomo)
- 10 hectares in Swanson, now the Waiwhauhau / Tram Valley Reserve

- 2 hectares of wetland at 42 Seaview Road, Piha; adjoining the regional park and neighbouring Piha Domain (previously Ministry of Education land).



Looking north towards Taitomo Island and the Gap (with herb field).

Approximately 87 hectares of these new protected areas is dominated by indigenous vegetation. Thirty-four hectares contains indigenous habitat of special significance due to its restricted distribution and threatened status.

The Matuku Reserve Trust purchased 37 hectares of land known as Matuku Link. This links kauri forest, a river valley, wetlands and the sea and connects the predator controlled Matuku Reserve to Ark in the Park, the buffer-zone area, the Forest Ridge Project, Habitat Te Henga and the regional park (refer to Map 1: New reserves, covenants and Biodiversity Focus Areas). This reserve also supports the connection to the North West Wildlink ecological corridor from west Auckland to the Hauraki Gulf.

Twenty-two hectares at the Waitākere quarry site (off Te Henga Road) is no longer used for quarry operations and some restoration planting has been undertaken.

2.4.4 Bird (avifauna) changes between 2013 and 2018

Ten-minute bird counts (based on standard five-minute bird counts) in forest and scrub habitat locations throughout the heritage area are used to measure the representation of birds and as an indicator of ecosystem health. The bird counts taken between 2012 and 2017 showed no significant changes in bird populations. A good ratio of native versus introduced birds was recorded (on average 4.8 native to 2.7 introduced birds) with very similar numbers of endemic, native and introduced birds counted as those in the 2012 survey.

2.4.5 Seabirds

The council is in the process of developing a regional seabird programme which will include identifying and monitoring some key seabird areas in the heritage area. Recent survey work was undertaken from northern Te Henga / Bethells beach to Muriwai. The information from this programme will be reported in the State of the Waitākere Ranges Heritage Area 2023 report.

Some of the only known grey-faced petrel breeding colonies are located north of the heritage area up to Muriwai, and at Te Henga / Bethells beach, Piha, Karekare, Whatipu and Cornwallis. Community restoration groups are undertaking pest management at many of these nesting areas including at Te Henga / Bethells beach, Piha and Cornwallis.



Grey-faced petrel chick and adult. (Source: James Russell)

2.4.6 Threatened, at-risk and vulnerable species change between 2013 and 2018

Threatened species are plant and animal species whose population has declined to the extent that without some form of intervention or conservation management there is a risk of their becoming extinct at a local, regional or national scale.

There are approximately 231 'threatened' or 'at-risk' species within the heritage area. Overall, at least 57 per cent of the known 'threatened' or 'at risk' fauna species are under some active conservation management through the council's and Department of Conservation's biodiversity operations programmes. The species under active conservation management are summarised below in Table 2: Number of threatened or at risk species under conservation management in 2017, and listed in Appendix 8.

Table 2: Number of threatened or at risk species under conservation management in 2017

Threatened or at risk species in the heritage area 2017	Number and % of species under active conservation management in 2017
176 plant species	12 plant species (7%) Including <i>Lepinella rotundata</i> (thought extinct but discovered in early 2000s and with more areas discovered in the last 5 years)
29 bird species	18 bird species (62%)
8 freshwater fish species	3 freshwater fish species (38%)
5 reptile species	4 reptile species (80%)
1 frog species	Hochstetter's frog (100%)
1 bat species	Long-tailed bat (100%)

There are two areas where threatened species have been successfully reintroduced since 2013 namely:

- Matuku Reserve (and Matuku Link) where 100 pāteke (brown teal) were introduced over the 2014 to 2016 summers
- Ark in the Park where 47 kokako have been introduced between 2009 and 2016, and 653 whitehead were introduced between 2004 and 2016.⁹

In 2014 to 2015 approximately 100 North Island robin were observed in Ark in the Park and Kakariki (New Zealand parakeet) are planned to be released in Ark in the Park in the future. Monitoring of (usually) five or six banded dotterel nests at Whatipu has been undertaken by Friends of Whatipu since 2003, along with pest control. Whatipu supports a number of rare birds.

Monitoring of dotterels at Te Henga / Bethells beach has also undertaken for a number of years, along with pest control. To protect the birds during filming the Waitākere Ranges Local Board has developed a Dotterel Management Framework for Te Henga / Bethells beach.

Population monitoring of the Hochstetter's frog undertaken at Ark in the Park and the Huia catchment in 2016 indicated that the populations studied were stable¹⁰.

⁹ Auckland Council technical report TR2018/002 / *Changes in indigenous ecosystems and the environment within the boundary of the Waitākere Ranges Heritage Area Act 2008: 2012-2017.*

¹⁰ Longson, C. 2016. *Field season report from Waitakere Ranges, for Auckland Council and Ark in the Park.* EcoQuest Education Foundation

Long-tailed bat – nationally vulnerable species

There are two living endemic bat species in New Zealand, the short-tailed and long-tailed bat, which are New Zealand's only native land mammals. The short-tailed bat (*Mystacina tuberculata*) is the more endangered of the two species. The long-tailed bat (*Chalinolobus tuberculatus*) is the more common of New Zealand's bats, but is still classed as nationally vulnerable. The long-tailed bat was found within the heritage area in 2012 during a bat survey near Swanson Reserve and has since been the subject of a number of surveys and studies¹¹.



Image on left: Long-tailed bat. **Image on right:** Automatic bat monitor (Source: Georgia Cummings)

The long-tailed bat:

- is small (weighing between 8-11grams)
- is vulnerable to predation from possums, rats, ferrets, stoats, weasels, and feral cats
- feeds on moths, midges and other flying insects at dawn and dusk
- focuses much of its foraging activity along streams, where any large trees growing along riparian margins may be used for roosting
- uses an echolocation call at a very high frequency for both social interactions and foraging for food (which cannot be heard by the human ear)
- commonly roosts high in tree cavities, epiphytes or loose-bark of large native trees and prefers mature (~1000 year old) kauri trees
- on average 10 bats occupy a roost and move between different roosts on a nightly basis
- can fly at 60km/hr over a very large range.

¹¹ Boffa Miskell Ltd / Auckland Long-tailed Bat Monitoring 2017 / Bat Roost Assessment in Waitākere Ranges Regional Park / 19 June 2017

Surveys found that the heritage area (and surrounds) contains one of the larger long-tailed bat populations recorded in the region and the heritage area is recommended as a priority area for protection.



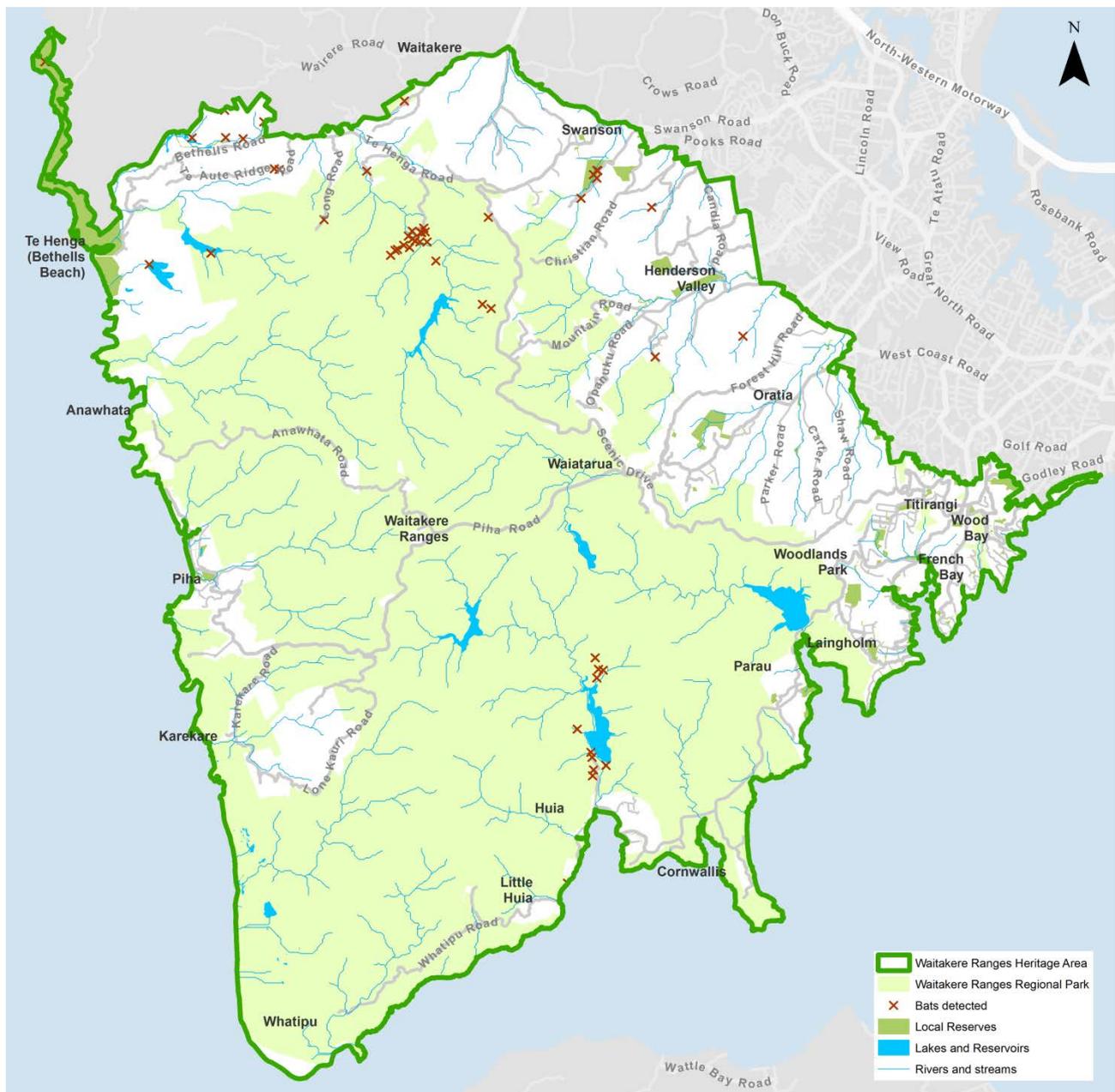
Mature kauri tree where long-tailed bats roost. (Source: Boffa Miskell Ltd)

Over the last five years acoustic survey monitoring, and more recently infrared cameras, have been used to identify the long-tailed bat's roosting habitat to identify where future research and conservation activities should be focused. The research has established that the preferred roosting habitat for the long-tailed bat is mature (not re-generating) kauri forest.

Two sites in the heritage area that have the largest remaining stands of mature kauri have been identified as the key roosting sites for long-tailed bats, and are the focus of ongoing monitoring, namely:

- two areas at Cascade Kauri Park (and an area immediately west of Cascade Kauri park)
- one area north of the Lower Huia reservoir (refer to Map 2: Location of the long-tailed bat roosting sites in the heritage area).

Map 2: Location of the long-tailed bat roosting sites in the heritage area



The risk of kauri dieback affecting these key roosting areas could have implications for population viability of the long-tailed bat within the heritage area. There is presently little understanding of how the advancement of kauri dieback disease will affect the long-tailed bat populations.

Suggestions for the future – long-tailed bats

Ongoing monitoring of the resident long-tailed bat population should be continued to understand their use of the heritage area and to focus conservation efforts to minimise threats to the bat population. The results of research on the long-tailed bat population in the heritage area will be reported on in the State of the Waitākere Ranges Heritage Area 2023 report.

Funding – long-tailed bats 2018 to 2023

Local board funding of \$5000 to continue monitoring the long-tailed bat population in the heritage area has been approved for the 2017-2018 financial year.

Funding should be continued until a complete understanding of the long-tailed bat's use of the heritage area is known and how to best manage threats to the population is determined.

Funding related to managing kauri dieback needs to incorporate protection of the mature kauri forest known to be important for long-tailed bat roosts in the heritage area. In 2017-2018 the council will be:

- re-developing the project scope to focus on advocacy, and community awareness events for summer 2018. This will involve partnering with a community organisation to better engage with the community and target specific audiences about bat conservation
- investigating multi-partner funded research on long-tailed bats in west Auckland through radio tracking to better identify roosting habitats and bat range across peri-urban landscapes each night.

At its meeting on 5 December 2017 the council's Environment and Community Committee approved a grant allocation (from the Regional Environment and Natural Heritage grant programme) of \$53,340 over two years to the Community Waitākere Charitable Trust for long-tailed bat radio tracking in the Waitākere Ranges. The bat radio tracking project aims to help in further understanding the habitats that long-tailed bats are using to feed, move around the landscape and to sleep. The information collected will be used to understand how the local bat population may respond to changes in their environment, including from kauri dieback and urban expansion.

The bat radio tracking project has been granted a warrant from Te Kawerau ā Maki that allows access for research within the rāhui area subject to following strict protocols and procedures around spreading kauri dieback disease.

Future funding may need to be applied to intensive pest control to protect roosts. However, further research is currently required to continue growing knowledge about this species.

2.4.7 Pest plant changes between 2013 and 2018

Pest plants can smother, compete and result in the death of indigenous vegetation with the consequent loss of the ecosystems they support. Over 180 of the 272 declared pest plants in the Auckland Regional Pest Management Strategy¹² are established in the heritage area and are a threat to the areas nationally significant ecosystem values. The threat from invasive pest plant species is ongoing and likely to increase.



Climbing asparagus is a pest plant. (Source: Sirin Brown)

Eradication of all pest plants is not practical or affordable and a strategic targeted pest plant management approach is taken by council based on priorities set annually. A number of pest plant management projects are carried out throughout the heritage area each year based on this strategic approach.

In response to the National Policy Direction of Pest Management 2015 the council is currently developing a new Regional Pest Management Plan to replace the Auckland

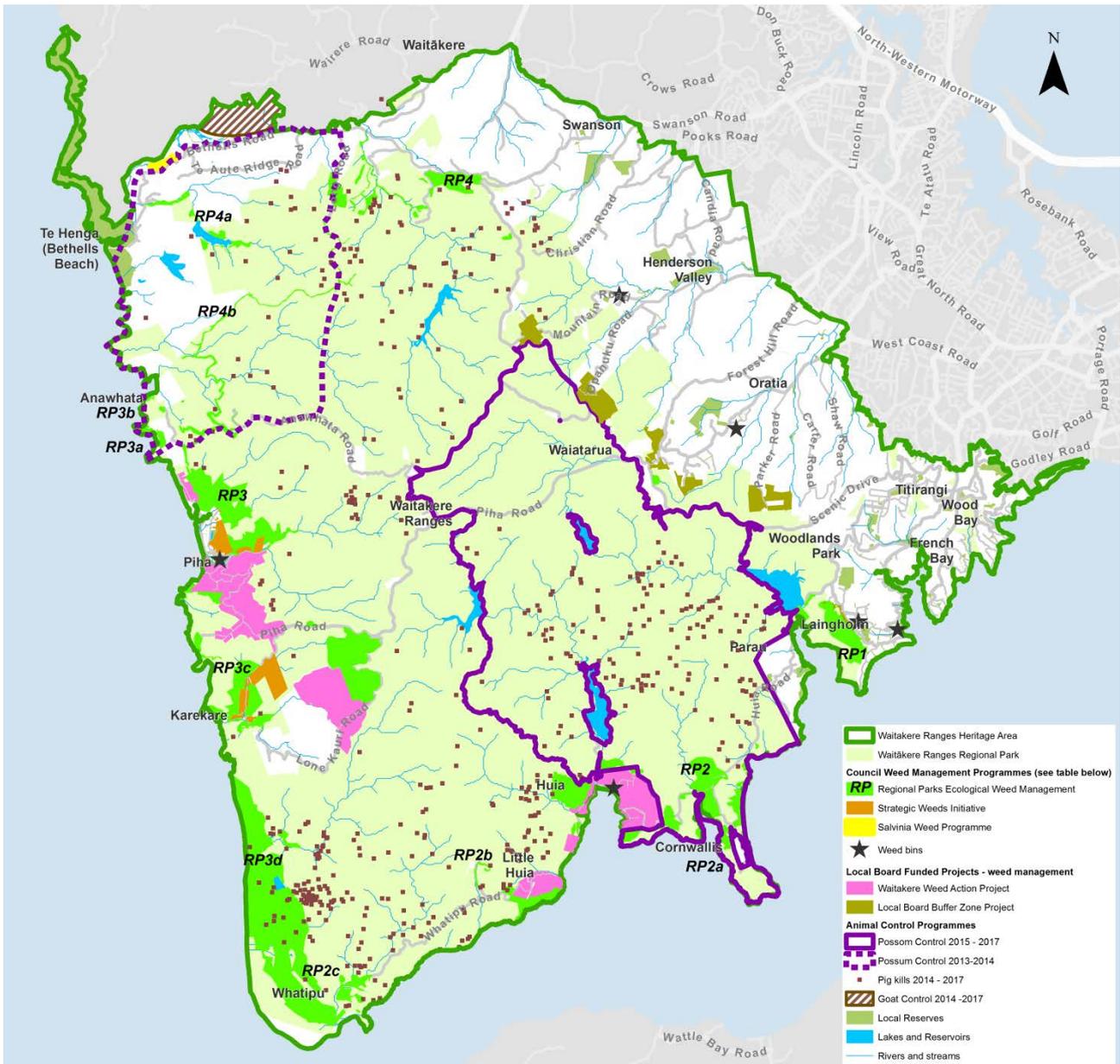
¹² Auckland Regional Pest Management Strategy 2007-2012

Regional Pest Management Strategy 2007-2012. The Auckland Regional Pest Management Plan (presently in development) may include a more site-led approach to pest plants in the heritage area. However, the plan is at an early stage of the process and there may be substantial changes made before an operative plan is adopted. The outcomes also partly depend on the budget decisions made through the Long-term Plan process.

The Waitākere Ranges Local Board commissioned the Waitākere Ranges Strategic Weed Management Plan (June 2015) to specifically address issues of pest plant management in the heritage area. A number of pest plant and animal programmes are undertaken by the council's Biosecurity team and community groups in the heritage area each year. The Waitākere Ranges Local Board funds a programme to control climbing asparagus at Piha, Huia and Karekare (refer to section 6.3.4 Strategic weed projects). Map 3 below shows the location of council's pest plant and animal control programmes between 2013 to 2018 and Table 3 describes the programmes identified.

Map 16 in Section 6: People and communities topic shows the location of the pest plant and animal control programmes that have been undertaken by local communities between 2013 to 2018 and Table 26 describes the programmes identified.

Map 3: Location of council pest plant and animal control programmes 2013-2018



See Table 3 below for explanation of the pest plant programmes identified in this map.

Table 3: Explanation of council pest plant and animal control programmes shown in Map 3 above

Auckland Council / Waitākere Local Board / Ministry for Primary Industries		
Pest plant (weed) programmes 2013 to 2018		
Map 3 legend reference	Pest plant (weed) management programme 2013-2018	Focus of activity
Yellow shading	Salvinia weed programme	Ministry for Primary Industries; removal and surveillance of Salvinia aquatic weed (one of the 100 of the World's Worst)

Auckland Council / Waitākere Local Board / Ministry for Primary Industries Pest plant (weed) programmes 2013 to 2018		
Map 3 legend reference	Pest plant (weed) management programme 2013-2018	Focus of activity
		Invasive Alien Species) at Te Henga / Bethells Beach wetland
Dark green shading	Regional parks ecological weed management	Tactical weed control in key habitats and/or for key weed species
Orange shading	Strategic weeds initiative	Control pest plants on key areas of private land adjoining regional parkland to protect from external weed threats – including areas at Karekare and Huia
Pink shading	Waitākere Ranges Local Board funded project: Waitākere Weed Action project	Working with local community – current focus climbing asparagus at Huia, Piha and Karekare
Olive-green shading	Waitākere Ranges Local Board funded project: Buffer zone project	A local board funded project to manage weeds in response to local area plans where land is close (within 500m) of the boundary of the regional park
Star (symbol) ★	Waitākere Ranges Local Board funded project: Weed bin programme	A local board funded project to provide bins for the local community to dispose of pest plants
RP1	Laingholm area	Focus on climbing asparagus, wild ginger and monkey apple
RP2	Huia area	Focus on climbing asparagus, wild ginger, moth plant and tradescantia
RP2a	Cornwallis fire site	Focus on plants that are competing with native regeneration at the site
RP2b	Mt Donald McLean	Focus on exotic plants interfering with the threatened native plant <i>Hebe bishopiana</i> habitat
RP2c	Whatipu	Focus on moth plant, pampas, Formosan lily, saltwater paspalum, agapanthus and

Auckland Council / Waitākere Local Board / Ministry for Primary Industries Pest plant (weed) programmes 2013 to 2018		
Map 3 legend reference	Pest plant (weed) management programme 2013-2018	Focus of activity
		periwinkle
RP3	Piha area	Focus on climbing asparagus, wild ginger, agapanthus, and tradescantia
RP3a	Whites Beach	Focus on climbing asparagus, pampas, Japanese honeysuckle and Montpellier broom
RP3b	Anawhata	Focus on agapanthus, pampas, moth plant, aristeia and African pigs ears
RP3c	Karekare	Focus on climbing asparagus, blue morning glory, mile-a-minute and wild ginger
RP3d	Pararaha	Focus on pampas, marram grass, periwinkle, aristeia and tradescantia
RP4	Cascades area	Focus on moth plant, giant reed, tradescantia, wild ginger, willow species and Japanese honeysuckle
RP4a	Lake Wainamu	Focus on moth plant, pampas, climbing asparagus and climbing dock
RP4b	Tracks	Focus on aristeia

Auckland Transport, in line with recommendations from council's biosecurity team, is currently carrying out a pest plant removal programme in the Waitākere area (including the heritage area). Auckland Transport has made progress in targeting some of the following species:

- moth plant
- woolly nightshade
- Chinese privet (species up to 1.5m in height)
- tree privet (species up to 1.5m in height)
- gorse
- wild ginger.

To date Auckland Transport has not yet produced a management plan which is a requirement under section 18.2 Management Regime of the Regional Pest Management Strategy 2007-2012.

A number of community groups undertake pest plant and animal control and restoration projects and jointly make a significant contribution to protecting and restoring forest habitat and indigenous species within the heritage area. Refer to Map 16 and Table 26 in Section 6: People and communities topic. The council provides financial, administration and practical assistance to these groups.

Progress is being made towards controlling pest plants at a number of intensively managed sites. However, current resourcing is insufficient to achieve comprehensive pest plant control across the heritage area, and this is especially evident in edge habitat such as transport corridors. While monitoring is undertaken at control sites, there is no systematic outcome monitoring framework in place to track changes in pest plant distribution, density and impacts across the heritage area as a whole. Implementing a more comprehensive monitoring framework would support better tracking of overall progress towards the heritage area objectives.

The pest plant plots currently monitored by council are almost all within the regional park. These plots, mostly within dense tracts of native forest, are less susceptible to pest plant establishment or to 'invasion' from pest plants spreading from more open edge areas adjoining the park, or from road corridors. In the long-term highly infected edge sites are likely to lead to more extensive pest plant invasion of core forest habitats. This risk is further exacerbated with the likelihood of increased disturbance events due to climate change and increased canopy openness due to kauri dieback disease.

Additional monitoring sites are required to measure pest plant spread in the park edge 'buffer areas', along road corridors and from road corridors into the native forest.

2.4.8 Pest animal changes between 2013 and 2018

Pest animals are a major threat to the biodiversity of the heritage area. Predators such as rodents (rats), mustelids (stoats and weasels), possums and cats are the greatest threat to native bird, reptile and invertebrate populations in the heritage area.

There are presently no feral deer or goats within the regional park. Retaining this status requires ongoing monitoring by the council's biosecurity team and the Department of Conservation. Contractors continue to cull deer and goats where they are observed and if there is a risk of their entering the regional park (refer to Map 3 above).

Feral pigs are present in a number of areas in the regional park and are subject to an annual programme of contracted hunting and monitoring of kills. Pigs pose a threat to indigenous insects, plants and other organisms and are likely to play a significant role in the spread of kauri dieback disease (refer to Map 3 above).

A number of community groups are actively involved in extensive pest control programmes (refer to Map 16 in Section 6: People and communities topic).

Many pest animals are difficult to eradicate or control and a sustained pest control approach, which aims to keep key pests at levels which allow for the recovery of the ecosystems and indigenous species, is taken.



Image on left: animal pest control sign. Image in middle: rat. Image on right: possum.

Possoms are one of the most devastating pest animals in the heritage area and are the target of the largest pest animal management programmes. Residual Trap Catch (RTC) levels are a useful indicator for monitoring animal pest management in the heritage area. Less comprehensive possum trend monitoring has been carried out in the heritage area over the last five years as the funds available have been used on actual possum control.

Under the Long-term Plan, during this monitoring period, the Residual Trap Catch (RTC) levels for possums across Auckland were set at a 5 per cent or less threshold. To ensure this threshold is met contracts for possum control issued over this monitoring period (and since 2001) have required that a RTC of 3 per cent or less be met.

Efforts have been focused on targeting possum control to larger blocks of land to bring RTC levels back down below the key 3 per cent goal. The latest (partial) survey in 2016-17 of 75 pest lines showed the desired RTC value of 2 per cent.

Possum control areas between 2012 and 2017 are shown on Map 3 above. Table 4 below shows the changes in the RTC of possums within the regional park between 2012 and 2017.

Table 4: Changes in residual trap catch (RTC) of possums within the regional park between 2012 and 2017

Year	RTC value	Description	RCT change from previous year
2012-13	6.6%		
2013-14	5.4%		-1.2%
2014-15	(4.7%)	Partial survey (85 of 150 pest lines)	
2015-16		No monitoring	
2016-17	(2%)	Partial survey (~75 of 150 lines)	

Suggestions for the future – pest plants and animals

Ongoing council support for the pest management work undertaken by local communities and land owners in the heritage area is needed to help retain biodiversity of the heritage area. Council is also seeking increased budget through the Long-term Plan process to enable more comprehensive pest plant and animal programmes to be undertaken in the future. Ongoing pest plant and animal control is required at a level that, at a minimum, retains the biodiversity and ecosystem values of the heritage area.

Additional monitoring sites in the eastern foothills and road corridors are needed to enable robust and accurate reporting on pest plant spread and the effectiveness of control programmes undertaken in these areas.

Residual trap catch monitoring will continue to be used to monitor possum densities. Effort will continue to focus on retaining the less than 3 per cent residual trap catch levels.

Funding – pest plants and animals 2018 to 2023

The management and funding for pest plant and animal control is a matter of key interest to local communities and landowners within the heritage area. Initiatives by the local board, such as buffer zone weed programmes and community weed bins are well-subscribed.

This report highlights the need to fund monitoring at a level sufficient to assess overall trends in ecosystem health across a range of ecosystems and land tenure types. This includes monitoring of transport corridors in other edge habitats in addition to the forest.

Through the Long-term Plan 2018-2028 process council is consulting with the public on whether additional money should be allocated to protection of the natural environment

through a targeted rate. One the targeted rate options (Option A) would provide for a substantial additional investment in kauri dieback management, but would see little if any additional funding for pest plant or animal management within the heritage area.

The other targeted rate option (Option B) would see a substantial increase in funding allocated to pest plant and animal control in addition to enhanced kauri dieback management. This option would provide for most of the programmes proposed Regional Pest Management Plan in its current form. Neither of the options present in the Long-term Plan (2018-2028) would provide for the full implementation of the Regional Pest Management Plan in its current form.

Public consultation on the proposed Regional Pest Management Plan, as well as budget decisions arising from the Long-term Plan process, will combine to inform the final plan. The approved Regional Pest Management Plan and the amount of funding allocated through the Long-term Plan will have a significant influence on meeting the heritage area objectives over the next 10 years and will be of key interest to the local board and communities within the heritage area.

2.4.9 Biosecurity changes 2013 to 2018 - kauri dieback disease

Kauri dieback disease is caused by a soil and water borne microscopic fungus-like plant pathogen (now formally named *Phytophthora agathidicida*(PTA)) that was discovered in 2008. Infection by PTA results in the eventual death of kauri trees of all ages. At present there is no known way to combat the pathogen and no proven treatment for infected trees. The disease can be spread with just a pinhead of soil and the highest risk of spreading the disease is from soil disturbance associated with human activity. Contaminated soil from vehicles and animals, such as feral pigs, can also spread the disease.

In late 2008 MAF Biosecurity New Zealand declared PTA an 'Unwanted Organism' under the Biosecurity Act 1993 and its movement is restricted under this legislation. In response a multi-agency long term management programme involving Tangata Whenua, Department of Conservation, Northland, Waikato and Bay of Plenty Regional Councils, Ministry for Primary Industries and Auckland Council has been underway since late 2008.

Kauri is a key 'ecosystem driver' in that it has a significant influence on soil chemistry and local plant diversity. As most of the indigenous vegetation in the heritage area is primarily kauri or mixed kauri forest, kauri dieback disease presents a major threat to the kauri forest ecosystem of the heritage area; far greater than 'traditional' threats such as possums, and invasive weeds.

A surveillance programme was initiated in 2008 to determine the distribution of kauri dieback disease across Auckland, with a particular focus on the regional park. In 2009, a targeted ground survey identified five significant disease zones along the regional park track network. This was followed by an aerial survey in 2010 to assess the extent of kauri dieback off-track. The aerial survey identified numerous unhealthy trees and groups of

trees that had not previously been recorded by ground surveying. It also increased the known extent of unhealthy trees at several locations where kauri dieback had previously been identified. All unhealthy trees identified in the aerial survey were inspected.



Image on left: thinning canopy of a kauri tree affected by kauri dieback disease. **Image on right:** Dead kauri tree.

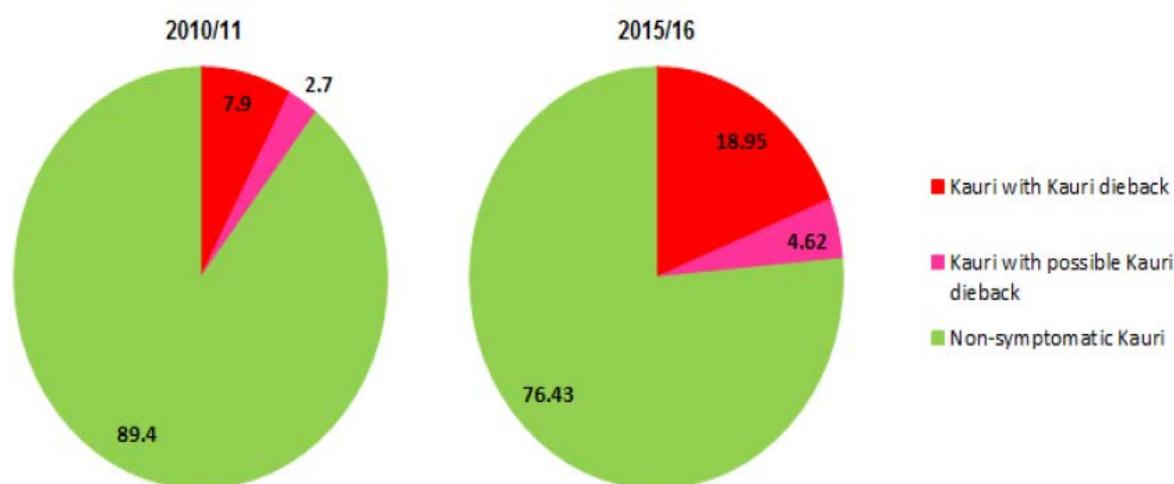
The council monitors the health of kauri trees in all of its regional parks every five years and the aerial and ground survey monitoring undertaken in 2009 and 2010 was repeated in 2016 and included:

- a survey of kauri health within 10 metres of the track network of the regional park
- an evaluation of current phytosanitary measures (cleaning stations)
- an evaluation of track conditions
- an aerial evaluation of the canopy health of kauri (summer of 2015-2016)
- a ground-truthing programme to assess symptoms (22,477 kauri trees were surveyed for symptoms of kauri dieback disease)
- collection of diagnostic samples where necessary (230 soil samples were taken for laboratory based diagnostics).

The investigation and findings were reported in 'Kauri Dieback Report 2017'¹³. The conclusions from this report are included in the discussion below.

The 2013 Monitoring Report estimated that eight per cent of areas of dense kauri forest were infected by kauri dieback and an additional 3 per cent showed signs of infection and were concluded as likely to be infected¹⁴. Following monitoring in 2016 it was calculated that 18.95 per cent of areas of dense kauri forest were infected with kauri dieback, and that a further 4.62 per cent showed signs of infection and were likely to be infected (refer to Figure 2 below).

Figure 2: Percentage of kauri areas affected by kauri dieback in the regional park between 2010/2011 and 2015/16



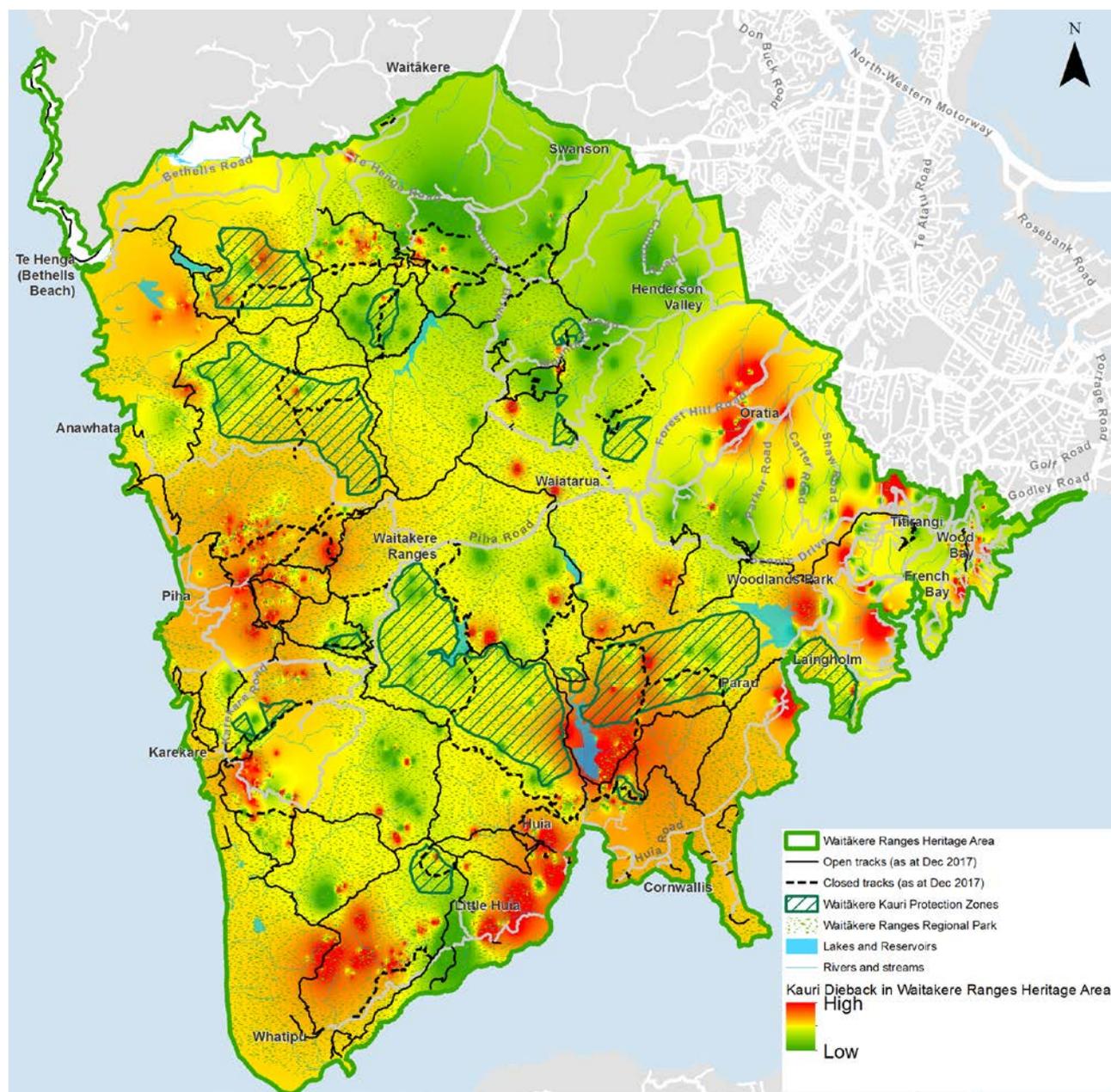
Kauri is a keystone species and the size of kauri forest areas is important to the integrity of a kauri ecosystem. Areas of kauri forest above five hectares in size have been defined as having key ecological values. Out of the 91 distinct areas of kauri forest above five hectares in size within the regional park, 58.3 per cent were observed to be exhibiting symptoms of kauri dieback infection.

Monitoring, including passive surveillance (public reports), shows some of the highest levels of kauri dieback infection on private land in the Auckland region are in areas surrounding the regional park, particularly privately-owned trees and stands of trees in the residential areas of Titirangi, Huia and Laingholm (refer to Map 4 above). As of October 2017, there were 414 private properties affected by kauri dieback disease. This equates to an area of 1039.59 hectares of private land being affected by kauri dieback disease within the heritage area. Map 4 below identifies the locations within the heritage area affected by kauri dieback disease in 2017.

¹³ Auckland Council / Kauri Dieback Report 2017: An investigation into the distribution of kauri dieback, and implications for its future management, within the Waitakere Ranges Regional Park / Version 2: Update June 2017

¹⁴ 2013 Monitoring Report pg 41

Map 4: Locations within the heritage area affected by kauri dieback disease in 2017



Analysis of the likely causes of the spread of kauri dieback disease concluded that:

- 71 per cent of kauri dieback zones and 56 per cent of possible kauri dieback zones were within 50 metres of a track
- 59 per cent of kauri dieback zones and 47 per cent of possible kauri dieback zones were within 50 metres of a waterway
- 48 per cent of kauri dieback zones and 28 per cent of possible kauri dieback zones are within 50 metres of a bait-line (however analysis of bait-lines was limited and incomplete).

The highest risk of spreading kauri dieback disease into new locations is considered to be from soil disturbance associated with human activity.

There is presently no known treatment to halt the spread of the disease or to treat infected trees. Phosphite injections have been trialled on trees in the regional park and by property owners within the heritage area. While there have been some positive signs, there are still some unknowns and limitations to the use of phosphite. Phosphite manages symptoms, but is not a cure and cannot eradicate the disease from an infected tree. Further research is also required to understand the application and effectiveness of this treatment across different size classes of trees over the long-term.

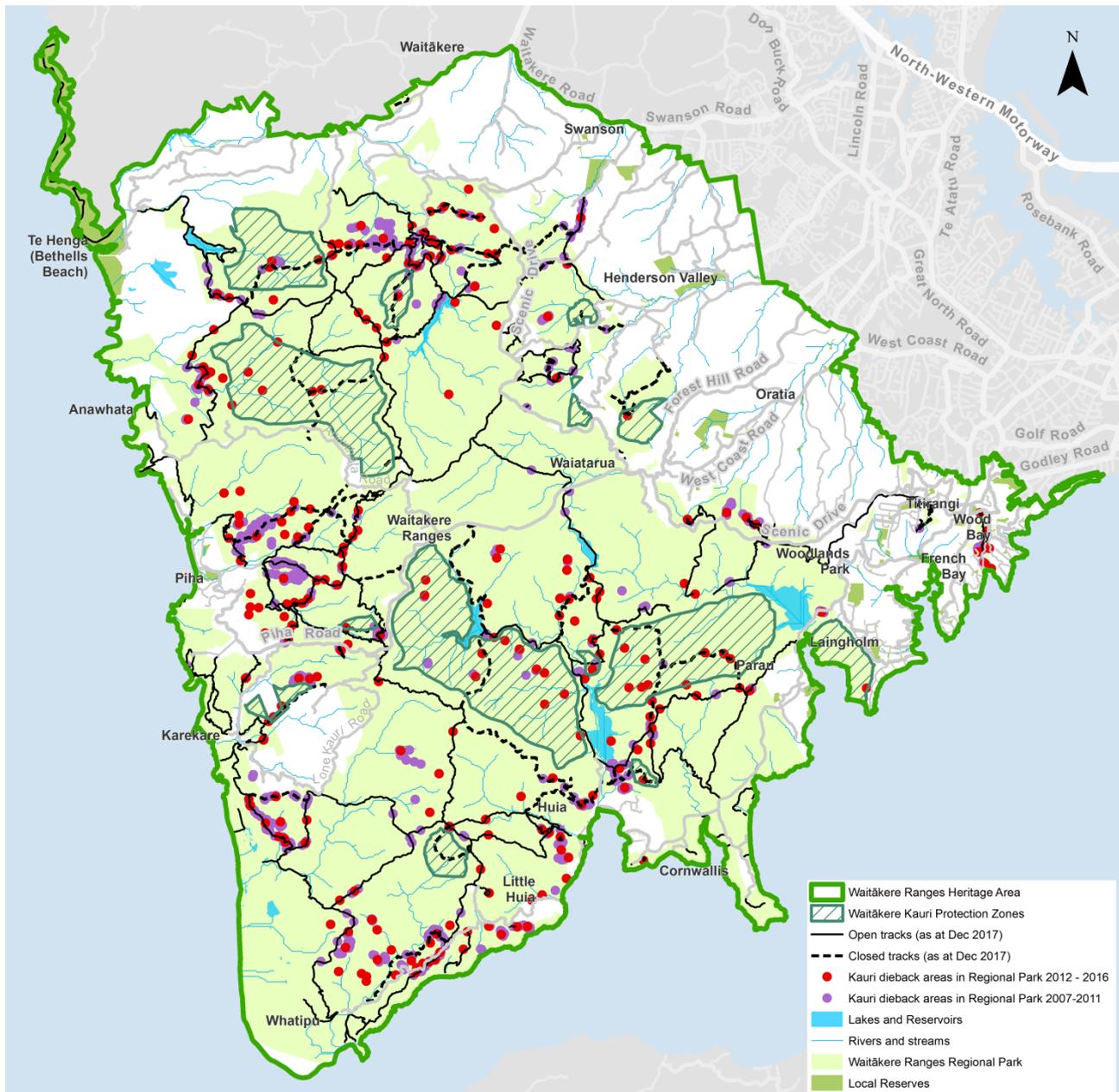


Image on left: Bleeding lesion on kauri tree affected by kauri dieback disease. **Image on right:** Kauri Greenhood Native Orchid .

All kauri forest within the heritage area is now considered to be at very high risk of infection by kauri dieback disease. The kauri is the backbone of the forest ecosystem and at least 17 other species rely on the kauri to survive. The loss of the kauri would have a cascade effect on the plants and animals that depend upon the kauri forest, including orchids and ferns that only grow under kauri and on the long-tailed bat (discussed above) whose preferred roosts are mature kauri trees.

Map 5 below shows the extent of the spread of kauri dieback disease within the regional park between 2012 and 2017.

Map 5: Extent of spread of kauri dieback disease in the regional park 2012-2017



The kauri forest of the heritage area is a taonga (treasure) that has significant and cultural and spiritual values for mana whenua. The increasing number of iconic trees, such as 'Aunt Agatha', being confirmed with kauri dieback has a major cultural impact. For Te Kawerau ā Maki the death of the forest is an existential threat. Kauri are tupuna (ancestors) and the rangatira (chiefs) of the forest. Their health is linked to the health of numerous other plants and animals within the ecosystem, and to the health of the iwi.

In response to the findings on the spread of kauri dieback disease Te Kawerau ā Maki placed a rāhui over people using the forests of the heritage area in December 2017. This action was taken to try and avoid further spread from people and to allow the forest to heal.

Findings – kauri dieback disease management

Phytosanitary stations (boot scrub and disinfectant stations)

Phytosanitary stations, (brush and a spray bottle of disinfectant with instructions for users to clean their footwear), were installed at a number of tracks within the regional park in 2008. The 2016 study concluded that these stations have failed to ensure a high level of effective disinfection, hygiene and track user compliance. Monitoring showed that while 78 per cent of regional park visitors were aware of kauri dieback and 89 per cent understood the importance of cleaning footwear, the average compliance with some form of cleaning was approximately 56 per cent. Ongoing work to improve the design and efficacy of these stations is underway.



Image on left: Cleaning boots with disinfectant. Image on right: Phytosanitary station.

Kauri protection zones – closed tracks and park activities

Following the 2012 kauri dieback survey 13 Kauri Protection zones were created to try and prevent the disease being introduced to approximately 400 hectares of kauri forest within the regional park (refer to Map 5 above).

The implementation of the Kauri Protection zones led to the closure of approximately 27km of tracks to public use and extra requirements or exclusions of other activities in these zones. The 2016 survey showed that there was no change in the status of kauri dieback in nine out of the 13 Kauri Protection zones and that the disease has spread within the protection zones as elsewhere within the heritage area.

It is difficult to assess the effectiveness of Kauri Protection zones as a management tool due to the lack of certainty over the period of time between the disease arriving at a site and the trees showing symptoms of kauri dieback. As a consequence it is not known whether the increase in trees showing symptoms of kauri dieback disease in the most

recent survey reflect disease spread that occurred before or after implementation of the Kauri Protection zones.

The closure of tracks has had limited success as a protection measure as monitoring data shows people's use of Kauri Protection zones has remained high in spite of track closures. This suggests there is an ongoing risk of people spreading the disease within protection zones and that further resourcing is required to implement effective track closures.



Kauri protection - closed track sign .

In addition a number of off-track and unmanaged activities were noted during the process of undertaking kauri dieback monitoring. There are also two canyoning concessions granted by council that authorise activities off-track. Off-track activities are a potential source of spread of kauri dieback disease (refer to Map 11 in Section 4: Recreational use of the heritage area topic).

Feral pigs

Feral pigs, which disturb soil through rooting, are suspected to be a factor in introducing the disease in some areas. Ongoing analysis of feral pig activity is required to determine the risk of the disease being spread through feral pig activity and how pig control might best be implemented to reduce the risk of disease spread.

Pest control bait-lines

Pest bait-lines are considered to be another pathway of human-assisted spread of kauri dieback disease. This is evident along the Ark in the Park bait-lines within the Cascades area of the regional park. Monitoring supports the hypothesis that historic activity (prior to kauri dieback being confirmed in the area) along these bait-lines has led to disease distribution and this can be seen in the size and shape of kauri dieback zones.

Waterways

A higher than average percentage of kauri dieback infection was detected in the 2016 survey along waterways and a high proportion of kauri dieback sites are within 50 metres of a waterway. Further analysis of this potential connection is required to quantify the risk of spread via waterways taking into account the extent of kauri forest that contains a high number and network of streams.

Local board and community initiatives – kauri dieback disease

In addition to the council and Ministry for Primary Industries initiatives a number of local board, community group and landowner actions have been undertaken to try and manage the spread of kauri dieback disease, raise awareness of the disease with the public and in trialling possible treatments (injecting affected trees with phosphite).

Since 2014 the Waitākere Ranges Local Board (with council's Infrastructure and Environmental Services team) have funded a community coordinator to provide advocacy, support and information about kauri dieback disease. This has resulted in a range of activities and events with stakeholders, schools, community groups and the public to raise awareness of kauri dieback disease.

The coordinator also supported the regionally funded summer ambassador programme and carried out track hygiene advocacy and compliance monitoring. This involved direct engagement with visitors at high-use track entrances and engagement with over 25,000 park visitors between January and April 2017. This position was continued in the 2016/2017 financial year.



Kauri dieback disease community coordinator .

Future considerations – kauri dieback disease

All kauri forest in the heritage area is at very high risk of infection by kauri dieback disease. There is now an extreme risk of continued spread of the disease locally, regionally and nationally, unless mitigation management and compliance levels are significantly improved (Parks Recreation and Heritage Forum 2011). The expansion of kauri dieback may have unknown future consequences for indigenous biodiversity within the heritage area.

On 2 December 2017 a rāhui (customary prohibition) was laid over the forest of the heritage area by Te Kawerau ā Maki as a matter of tikanga to stop human access (and spread of the disease), protect the forest for future generations and to enable the forest to recuperate. Te Kawerau ā Maki also asked the Government and council to implement a Controlled Area Notice under the Biosecurity Act (1993) over the forest to support the rāhui. In implementing the rāhui 'rolling opening' of areas for public use was to occur where the risk of spread was determined to be neutral or controlled.



Rāhui sign at the corner of Scenic Drive and Huia Road.

At its meeting on 5 December 2017 the council’s Environment and Community Committee resolved to support the rāhui in principle but considered it that it was not practicable, or able, to close the forests of the regional or local parks to public use. To support the rāhui 42 tracks within the regional park have been closed for public use (refer to Map 5 above). Phytosanitary stations (hygiene and shoe cleaning) and tracks are being upgraded and people are being advised to only use the upgraded open tracks. Ambassadors advising people of the threat of spreading kauri dieback are also to be stationed at a number of entrances and cleaning stations, and people are being encouraged to not use other locations for recreation.

On 20 December the Biosecurity Minister and Conservation Minister announced the development of a National Pest Management Plan to strengthen efforts to protect kauri trees from kauri dieback disease. An interim Controlled Area Notice under the Biosecurity Act applying to kauri forests is also under consideration.

This report covers the period up to 2018 (information up to the end of December 2017). Kauri dieback management initiatives are ongoing and changing. The State of the Waitākere Ranges Heritage Area 2023 report will update changes relating to kauri dieback from 2018 to 2023.

Funding – kauri dieback monitoring and management (2018 to 2023)

Council’s funding for the management of kauri dieback spread will be determined through the Long-term Plan process. Both options being consulted on through the Long-term Plan process provide for a substantial increase in investment in kauri dieback management.

The recommendation of the Kauri Dieback Report 2017 is that funding is needed for the preparation of a ‘Waitākere Ranges Regional Park Kauri Dieback Management Plan’ that would address:

- reviewing access and management of human vectoring
- considering options for feral pig control
- using knowledge of kauri dieback distribution to plan more effectively
- supporting and using research.

2.4.10 Emerging biosecurity threat – myrtle rust

Myrtle rust (*Austropuccinia psidii*) is an exotic fungal disease that attacks plants in the myrtle family including pōhutukawa, mānuka and rātā as well as some garden plants such as ramarama. Myrtle rust was found in mainland New Zealand in May 2017 and, in addition to losses of kauri from kauri dieback, could be devastating for the heritage area.

The heritage area contains many native and exotic cultivated trees that will be susceptible to the disease. The risk of the loss of iconic trees such as pōhutukawa and the potential threat to revegetation projects which use mānuka and kānuka as primary replanting species to re-establish forest ecosystems are huge. The Department of Conservation has initiated the collection of seeds for seed banking of vulnerable species within the heritage area.



Pōhutukawa in the heritage area 2017.

In November 2017 myrtle rust was found in west Auckland (affecting cultivated ramarama (*Lophomyrtus bullata*)) and subsequently in several other locations. If it cannot be

eradicated this outbreak presents a very high disease risk to myrtle species within the heritage area and in wider Auckland.

The impacts of myrtle rust on the heritage area will be reported in the State of the Waitākere Ranges Heritage Area 2023 report.

2.5 Indigenous aquatic ecosystems

2.5.1 River, stream and riparian changes between 2013 and 2018

Riparian vegetation is important because structurally diverse vegetation such as forest, scrub, reeds and rushes surrounding rivers, lakes or streams provide a range of benefits including:

- filtering and reducing surface water flows
- allowing sediment to be trapped and reducing the sediment entering streams
- shading and lowering water temperature
- preventing algae growth and supporting stream life
- providing organic matter that contributes to freshwater food webs
- providing habitat for spawning and shelter for fish and invertebrates
- providing habitat for native plants and animals.

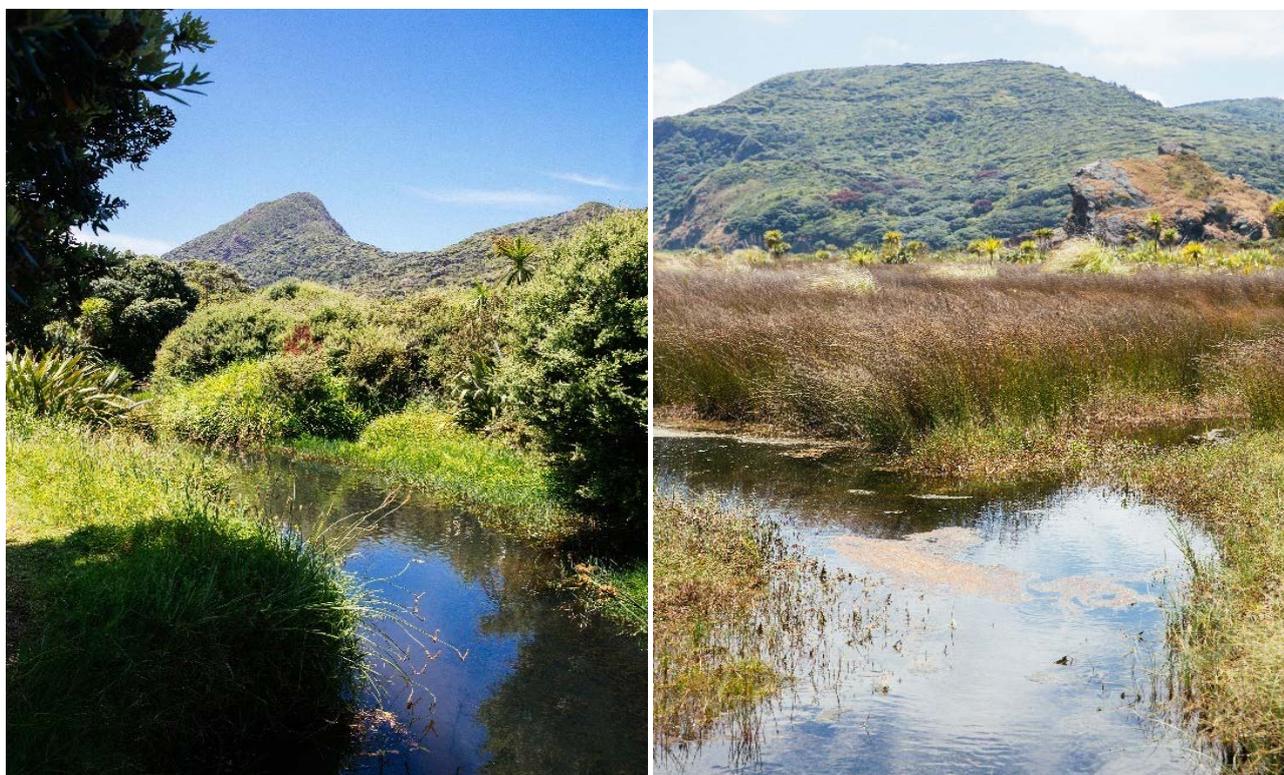


Image on left: Riparian margins along a stream. **Image on right:** Riparian margins in the Whatipu wetland.

Riparian vegetation adjoining rivers and streams was used as an indicator in the 2013 Monitoring Report and they were divided into two zones:

- **Zone I:** watercourses generally within the regional park and draining west ('pristine' watercourses)
- **Zone II:** watercourses generally within the eastern foothills and draining east (watercourses subject to greater land-use impacts).

High resolution aerial imagery and Lidar data has recently been obtained for the heritage area. Analysis of this information about riparian vegetation was not available at the time of preparing this report. A new building footprint and impermeable surface layer is also being developed. Once this data is available it will be used for measuring vegetation changes between 2018 and 2023.

For the purposes of this report an assessment was made on the likely change in riparian vegetation based on past information. The extent of change was concluded to most likely be minor. Table 5 below shows the assessed likely change in riparian vegetation cover 2012 to 2017.

Table 5: Assessment of likely change in riparian vegetation 2012 to 2017

2008 value	2012 value	Estimated change 2012-2017
Zone I: 91%	Zone I: 91%	Zone I: -0.01% (c.0.12 ha loss)
Zone II: 66%	Zone II: 66%	Zone II: -0.07% (c.0.24 ha loss)

2.5.2 Wetland changes between 2013 and 2018

Wetlands are important for the range of different environmental, economic, biodiversity and cultural benefits they provide. Only around four per cent of Auckland's original freshwater wetland ecosystems remain. The heritage area includes two significant regional wetland complexes; at Te Henga / Bethells Beach and at Whatipu. Several important dune lake wetlands and smaller and more fertile/modified wetlands exist surrounded by farmland. The coastal lagoons are discussed separately below.



Wetlands at Te Henga / Bethells beach

There was no change in the extent of wetland habitat between 2001 and 2012. While data was not collected between 2013 and 2017 it was concluded the extent of change from human activity is likely to have been negligible. Some changes in extent may have occurred through natural processes such as sediment accumulation.

Both the Te Henga / Bethells Beach and Whatipu wetlands are vulnerable to invasion by weeds; particularly pampas and blackberry at Whatipu, and grey willow and crack willow at Te Henga / Bethells Beach. The extent of weeds in these wetlands was used as the indicator to measure change and it was concluded that the extent of change was minor.

Changes in avifauna (birds) within the wetlands are monitored through ten-minute bird counts. The bird counts in 2011 and 2013 were undertaken at six wetland plots, with nine plots being measured between 2015 and 2017. The wetlands surveyed had, on average, slightly more native and endemic birds compared to introduced species. Overall no significant changes were detected.



The New Zealand Fernbird. (Source: Jacqui Geux)

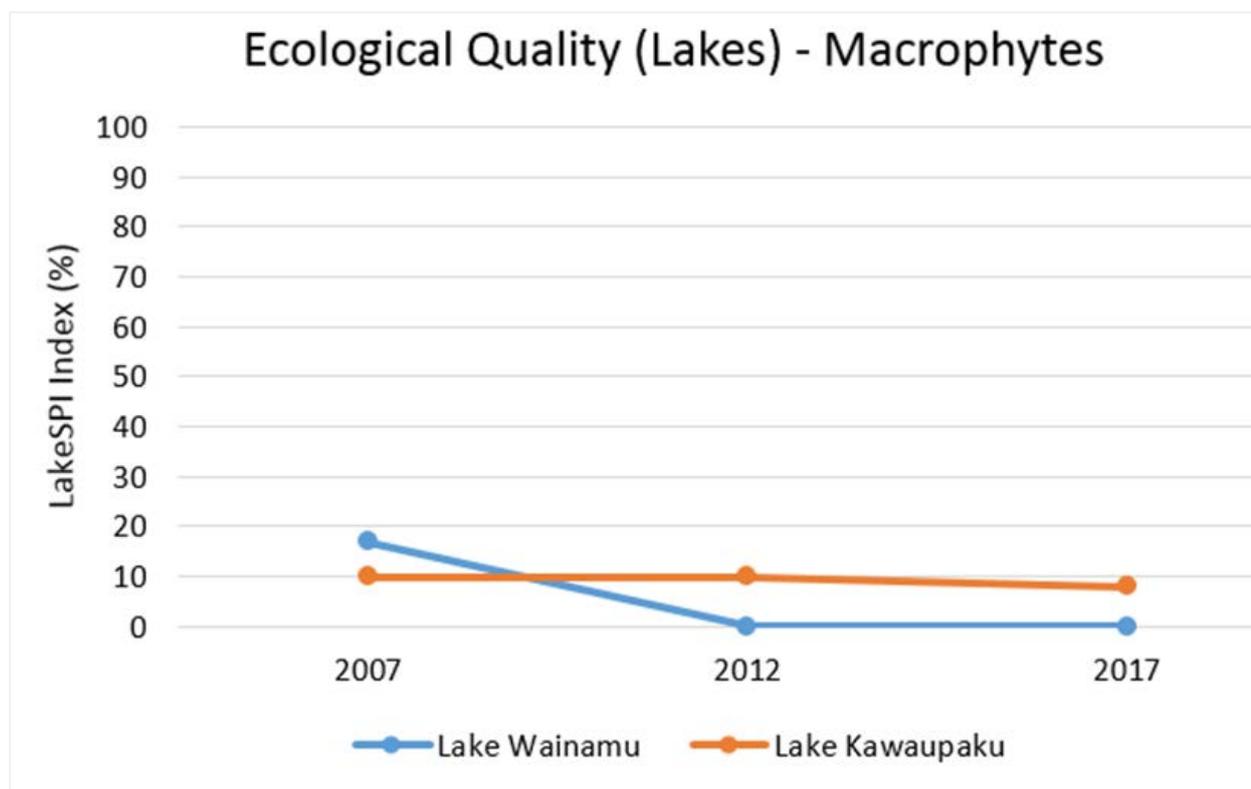
2.5.3 Dune-lake changes between 2013 and 2018

There are two large dune lakes in the heritage area; Lake Kawaupaku and Lake Wainamu at Te Henga / Bethells Beach. Both lakes have gone from a pristine state (in the 1970s), to being degraded by the invasion of the weed *Egeria*. Grass carp were introduced into Lake Wainamu in 2009 and have successfully addressed the weed invasion.

Indigenous macrophytes (submerged plant species) and rotifers (natural components of lake zooplankton communities) are used as indicators to measure the ecological health of lakes. The general trend noted from the 2008 to 2013 monitoring was that the ecological condition of both lakes was in the 'poor' range.

Data collected in 2017 and shown in Figure 3 below indicates that Lake Kawaupaku is still in decline. Lake Wainamu was not part of the 2017 survey as the grass carp used as part of the bio-control for pest macrophytes are still present and the lake is likely to still be non-vegetated.

Figure 3: Ecological condition of Lake Wainamu and Kawaupakau 2007-2017



2.5.4 Dune system changes between 2013 and 2018

Dune systems are dynamic and fragile ecosystems that provide critical buffering of adjoining land from heavy seas and wind and help mitigate coastal erosion. In the heritage area dune systems also provide important breeding habitat for a range of threatened bird species (including the northern New Zealand dotterel, the variable oystercatcher, the New Zealand pipit and the little blue penguin) and threatened plant species (such as shore spurge (*Euphorbia glauca*) and sand tussock (*Poa billardierei*)).

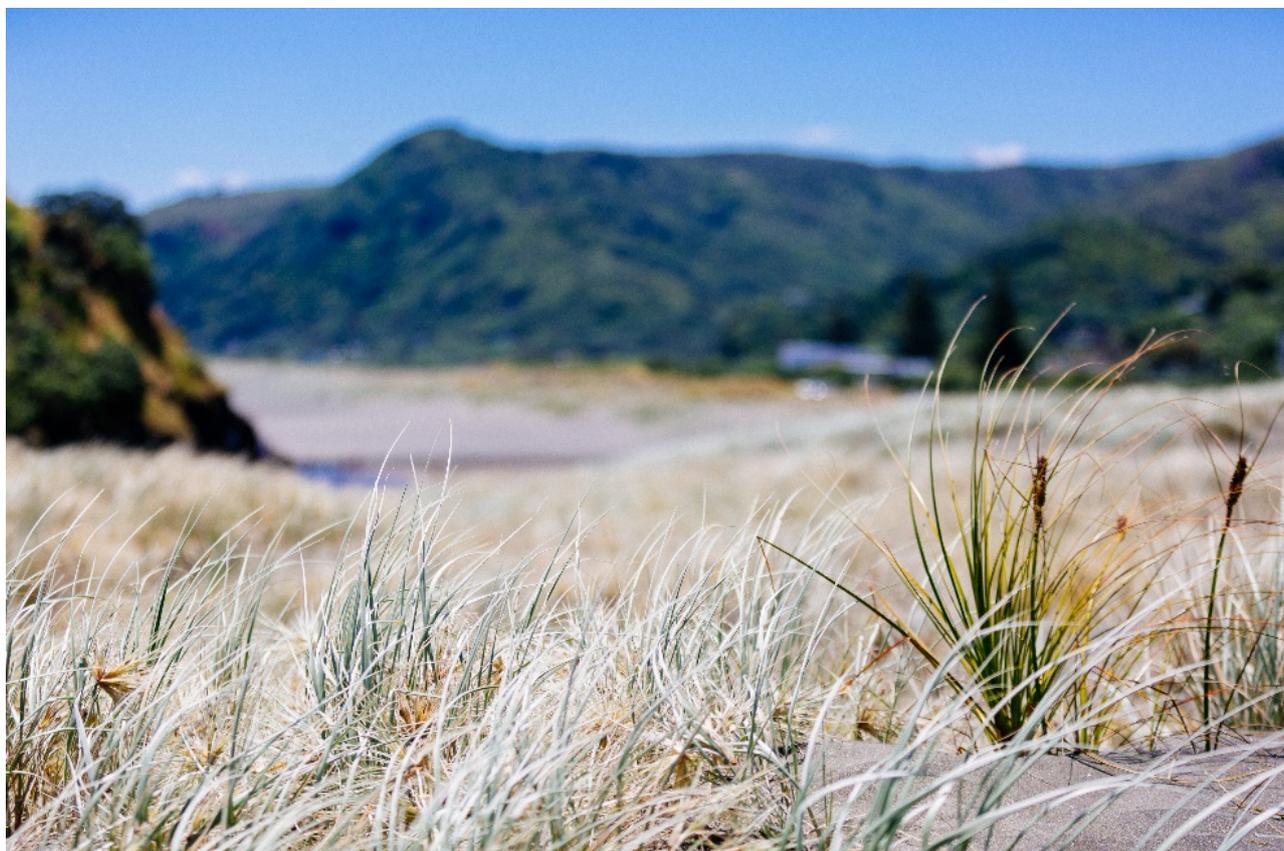
There are approximately 925 hectares of dune systems in the heritage area comprising (approximately):

- 80 per cent at Whatipu
- 15 per cent at Te Henga / Bethells Beach
- 5 per cent smaller patches of dune systems along the Tasman Sea coast.

Refer to Appendix 7 for description of the dune habitat in the heritage area. Exotic and other 'non-indigenous' dune vegetation has lower biodiversity values than indigenous vegetation but still provides habitat for indigenous animals and some plants, and often protects the natural physical structure of the dunes.

The construction of buildings, roads and other impervious structures result in substantial modification of dune morphology (e.g. cut and fill, removal of topsoil, paving over with concrete etc.) and the loss of natural values. The indicator used to assess change to dune

systems is the proportion of dunes covered by impervious surfaces. Buildings, roads and carparks and other impervious surfaces and structures are concentrated in the coastal settlements at Piha and Te Henga / Bethells Beach.



Dune system.

No data on changes to impervious surfaces affecting dune systems was collected for the period 2012 and 2017. However, the boundaries of all dune systems have recently been digitised and the council now has an accurate map of the extent of buildings from which to measure future change. The impermeable surface layer in council's GIS will become the main tool for calculating this indicator for the 2023 report. The council is presently investigating a regional dune system monitoring programme in addition to identifying future management actions for conserving and restoring dunes in Auckland.

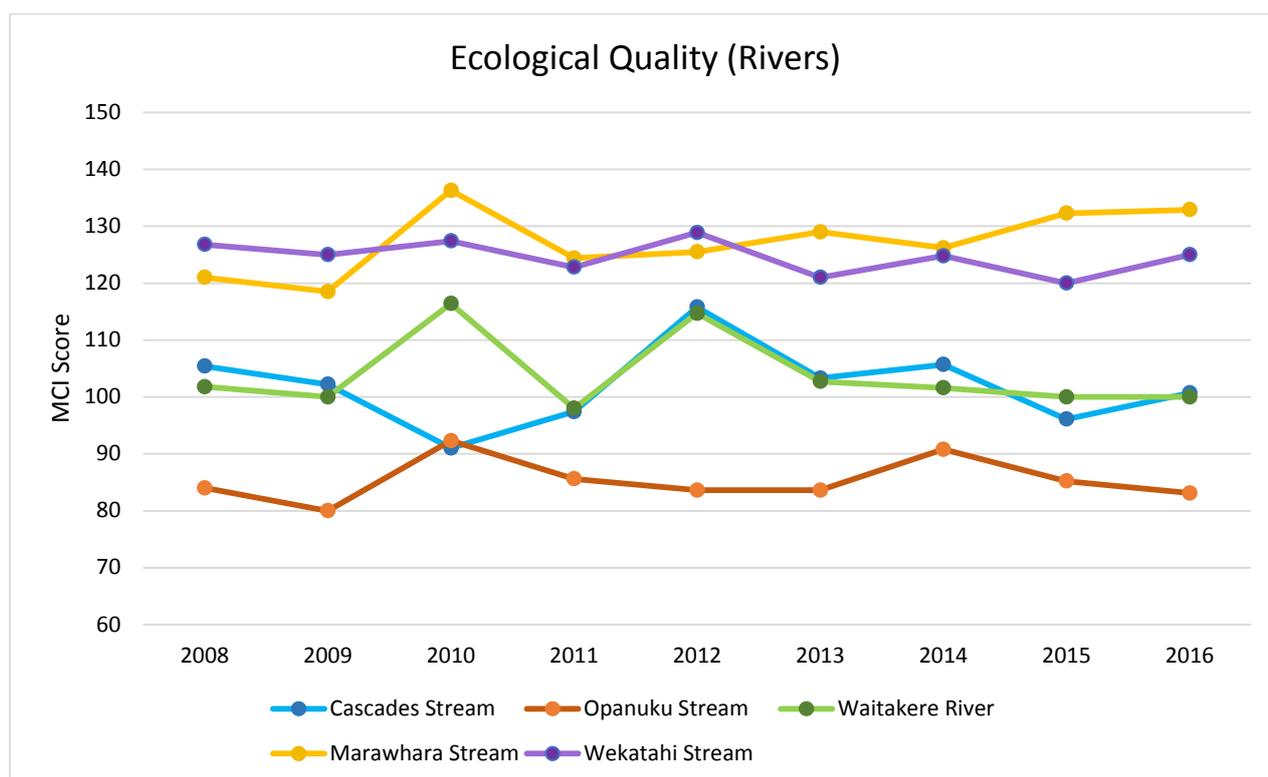
2.5.5 Stream ecology changes between 2013 and 2018

The macroinvertebrate communities of streams (for example the insects, bugs and worms) are frequently sampled to provide an assessment of the ecological condition of the stream. This is because they are found in all streams, are relatively easy to sample and identify, and are sensitive to a wide range of disturbances. Each of the commonly found species

are assigned a macroinvertebrate (MCI) “score” between 1 (least sensitive) and 10 (most sensitive) based on their tolerance to a range of environmental stressors.

Five sites in the heritage area that are monitored for ecological quality on a regular basis: Cascades Stream, Opanuku Stream, Waitākere River, Marawhara Stream, and Wekatahi Stream. The MCI scores and quality classes for these five sites are shown below in Figure 4.

Figure 4: Macroinvertebrate scores/ecological quality of streams

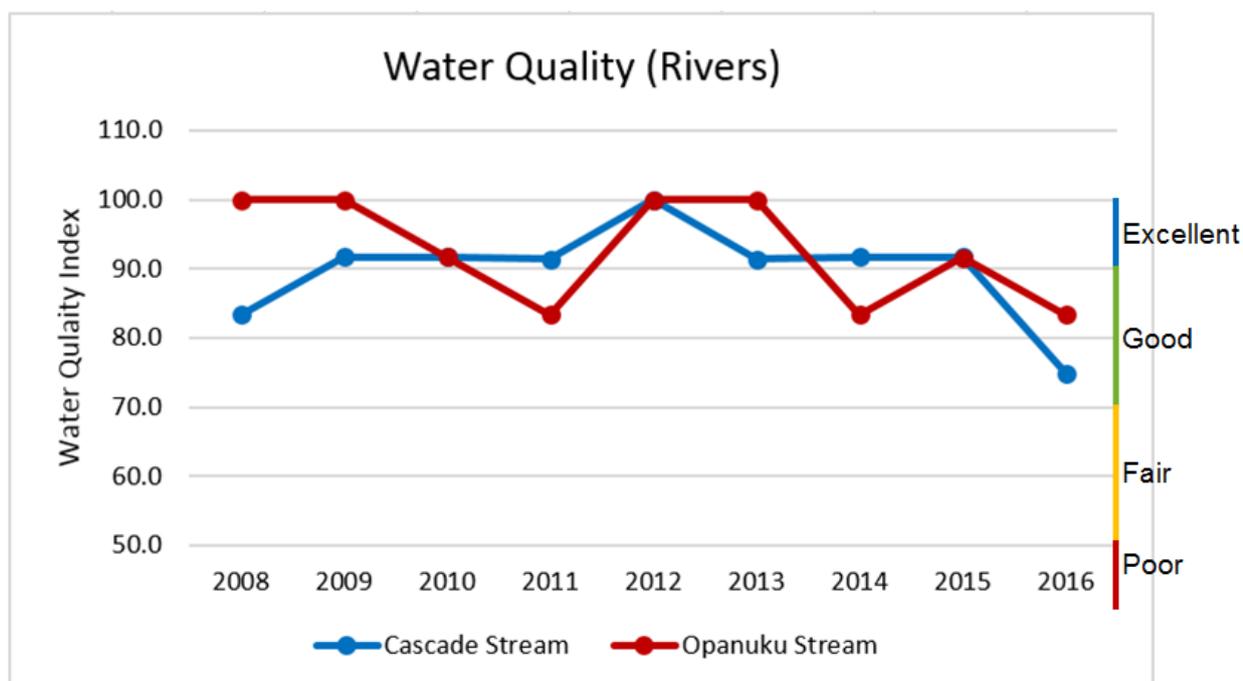


Monitoring between 2012 and 2017 showed stream ecological quality to be fairly constant, with excellent scores being maintained for Marawhara and Wekatahi streams. Cascade Stream and Waitākere River have continued to dip in and out of the Fair quality class, with Opanuku stream remaining towards the lower end of the Fair class. The recent River Ecology State and Trends report indicated that Wekatahi Stream has seen a statistically significant decline in MCI score, over the time period 2003 to 2013, but the minor nature of this change is such that it is likely not to be ecologically significant. The other four sites have not shown a significant trend.

2.5.6 Stream water quality changes between 2013 and 2018

There are two water quality monitoring sites within the heritage area; Cascades Stream and Opanuku Stream. The results from water quality monitoring of these two streams is shown below in Figure 5.

Figure 5: Water Quality Index data from river sites in the heritage area



Although changes over a short period of time cannot be accurately assessed, monitoring indicates that the water quality for Opanuku and Cascades stream may be in decline. However, both streams have remained within the “Good” to ‘Excellent’ class within this time frame. Trend analysis indicates that nutrient levels in both these streams are improving.

Some targeted monitoring of specific fish species was undertaken between 2016 and 2017 and results indicate that three of the four known Auckland populations of shortjawed kokopu are living within streams in the heritage area. The results of the 2016 and 2017 monitoring are shown below in Table 6.

Table 6: Rare fish populations in the heritage area

Fish Species	Location of population	Survey Date
Shortjawed Kokopu (<i>Galaxis postvectis</i>)	Marawhara Stream	2016
	Glen Esk/Piha Stream	2017

	Karamatura Stream	2016
Giant Kokopu (<i>Galaxias argenteus</i>)	Piha Stream	2017

2.5.7 Coastal lagoons and beach water quality

Coastal lagoons form part of the dune systems and aquatic ecosystems that are heritage features under the Act and the adjoining beaches contribute to the recreational opportunities of the heritage area. While the water at the beaches monitored may be outside of the legally defined heritage area they have been included in this report as it is the use of the land within the heritage area that is affecting the water quality of the adjoining beaches.

The 2013 Monitoring Report did not include a section relating to the water quality of the coastal lagoons or beaches. However, since 2013 the water quality at coastal lagoons and beaches has affected aquatic ecosystems and recreational use of the heritage area. For these reasons they are included as a matter to be monitored as part of this report.

Indicators used to measure water quality

Beaches and lagoons are the receiving environments for contaminants that originate from upstream and from nearby sources. As a result they often have higher levels of contamination, including from faecal sources. This contamination can pose a health risk to people swimming in the lagoons and beaches.

The criteria levels which determine if a beach or lagoon exceeds the allowable levels is based on the levels set out in the Microbiological Water Quality Guidelines for Marine and Freshwater Recreational Areas, 2003. Two parameters are used to measure water quality:

- *Escherichia coli* (*E.coli*) which is a microbiological indicator of pathogens in freshwater from animal or human faeces
- Enterococci which is a microbiological indicator of pathogens in saline environments, such as lagoons.

The Microbiological Water Quality Guidelines for Marine and Freshwater Recreational Area (2003) is used to assign a beach or lagoon a Microbiological Assessment Category grade (MAC) which determines if a beach or lagoon is issued with long-term signage warning people of the health risks. The MAC grade is based on a minimum of three years of continuous data and long-term signage may be placed if the grade is C or D. If a beach is graded a D the beach is monitored under the council's faecal source contamination investigations that aim to identify and fix the source of contamination.

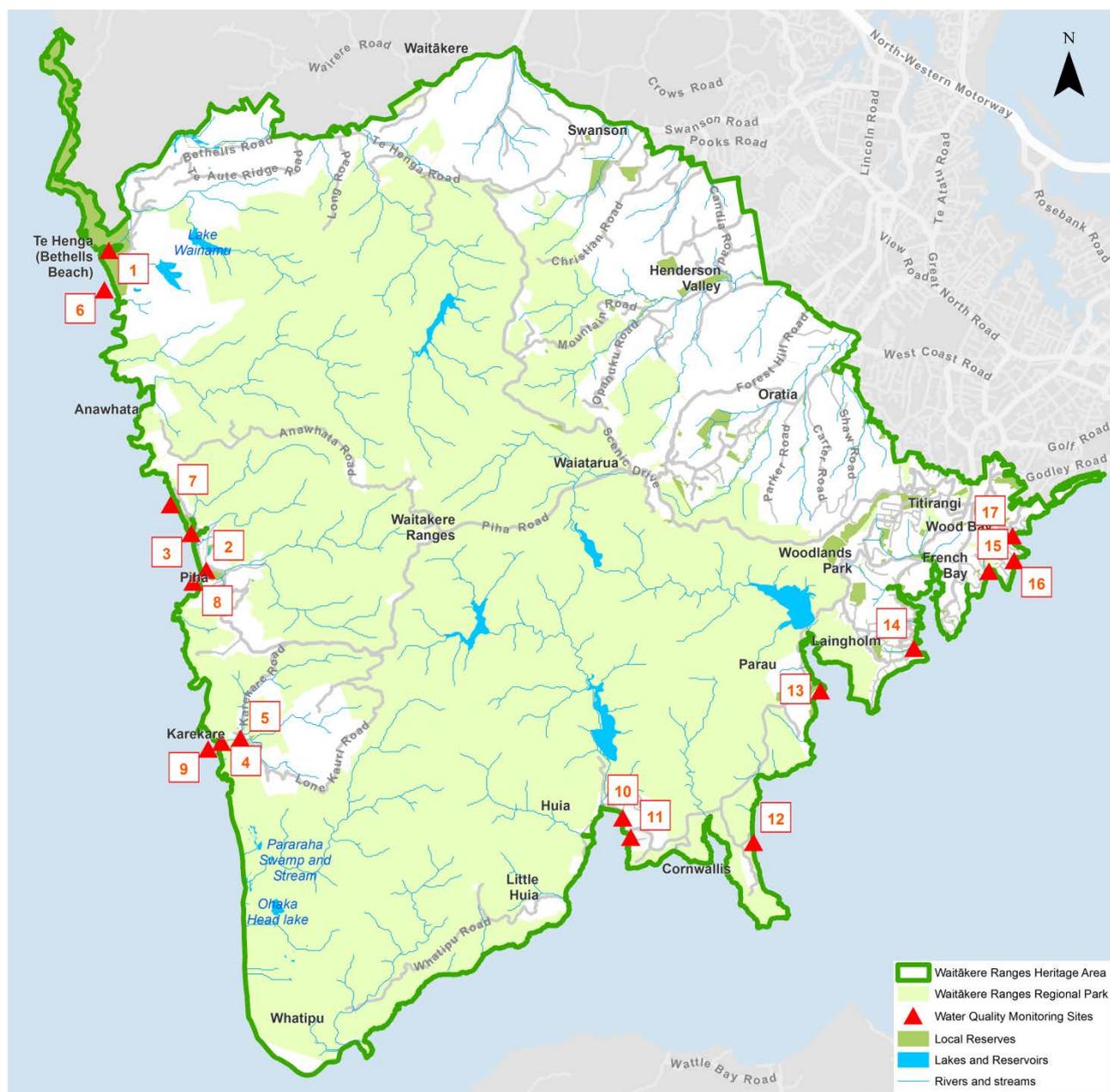
Water quality at five coastal lagoons and 12 beaches within, or adjoining the heritage area, are tested weekly over summer from November to March for levels of faecal indicator bacteria (FIB) (*E.coli* or enterococci) to determine if they are safe for swimming (refer to Map 6 below). If monitoring shows that a lagoon or beach has levels of faecal indicator bacteria that exceed the allowable levels of *E.coli* or enterococci, then signs are erected advising that the site is temporarily closed for swimming until faecal bacteria levels are safe for swimming. The closed beaches are referred to as 'long term signage sites'.



Public health warning sign at Foster Bay, Huia 2017.

Some sites within the heritage area have a D grade but are still suitable for swimming. These sites have had key issues assessed. Some sites have rapid dilution and dispersion by currents and large volumes of water where health risks can be managed by issuing health warnings through the Safeswim programme. Map 6 below shows the location of the water quality monitoring sites and Table 7 lists the MAC results for each of the sites.

Map 6: Location of water quality monitoring sites



Refer to Table 7 below for the water quality monitoring sites results.

Table 7: 2016/2017 results of water quality at the monitoring sites shown in Map 6 above. MAC grades are calculated from five summer seasons proceeding the most current summer season, namely 2016/2017.

Map 6 No.	Lagoons	MAC Grade	Status
1	Te Henga / Bethells Beach lagoon	D	Long-term signage
2	Piha lagoon	D	Long-term signage
3	North Piha lagoon	D	Long-term signage
4	Karekare lagoon	D	Open

5	Karekare lagoon carpark	D	Open
	Beaches		
6	Te Henga/Bethells Beach	B	Open
7	North Piha beach	A	Open
8	South Piha beach	B	Open
9	Karekare beach	A	Open
10	Huia Bay	D	Open
11	Fosters beach	D	Long-term signage
12	Cornwallis beach	C	Open
13	Armour Bay	D	Long-term signage
14	Laingholm beach	D	Long-term signage
15	Titirangi beach	D	Long-term signage
16	French Bay	D	Open
17	Wood Bay	D	Long-term signage

Physical sampling at the beaches with long term signage was stopped from the 2017/2018 summer season. The physical sampling has been replaced with the development of a model that predicts, with very little error of margin, the level of enterococci and whether it is safe for swimming. Stopping the physical sampling will allow funds and effort to be directed at identifying the contamination sources and improving the water quality at the beaches.

Identifying the sources of faecal contamination

Auckland Council uses DNA techniques to identify the species from which the faecal bacteria contamination originates. In summary the sources of faecal bacteria contamination were identified as:

- **Te Henga / Bethells Beach lagoon** - The highest occurrence of faecal bacteria contamination originates from livestock (ruminant) reflecting the catchment's use for rural livestock activities. Dog and bird sources were also common.

- **Piha lagoon** - Occurrence of faecal bacteria contamination originates from humans, reflecting that the catchment has the most densely populated beach settlement using on-site waste water systems (septic tanks).
- **North Piha lagoon** – Strong evidence of human contamination. However the exact source is unclear. Overall the lagoon had moderate levels of *E.coli*.
- **Karekare lagoons** – Moderate levels of *E.coli* are found at this site with the stream being a contributing source of *E.coli*. Good evidence of overwhelmed on-site wastewater systems caused by rain events.
- **Most beaches and lagoons** are affected by faecal bacteria from dogs, reflecting the popularity of dog walking in these locations.
- **Most beaches and lagoons** are affected by faecal bacteria from birds, reflecting the large amount of natural bird habitat that surrounds lagoons and beaches in the heritage area.

Actions taken to address degraded water

The council has ongoing investigations that look at the cause of elevated levels of faecal sources at a number of beaches. These include Huia Bay, Fosters Beach, Armour Bay, Laingholm Beach, Titirangi Beach, French Bay and Wood Bay.

The local board and community groups have been working towards improving the water quality at the lagoons and beaches in the heritage area. ‘Love our Lagoons’ was an education initiative and part of the West Coast Lagoons Action Plan¹⁵. This was initiated in 2014/15 and identified a number of other cross-council and community initiatives to improve water quality in the lagoons including:

- behaviour change initiatives
- community information events
- riparian planting and stock exclusion fencing subsidies for properties in the Te Henga / Bethells Beach catchment
- onsite waste water tank upgrade grants.

¹⁵ West Coast Lagoons Action Plan (5 February 2016) Auckland Council



Piha lagoon with health warning sign.

The West Coast Lagoons Action Plan will be reviewed in 2017/18 and will remain a focus area for a further three years. The outcomes of the West Coast Lagoons Action Plan will be reported in the State of the Waitākere Ranges Heritage Area 2023 report.

The local board provided a \$50,000 fund (for the 2015/16 and 2016/17 years) to provide up to \$5,000 per homeowner to assist with the costs of upgrading on-site wastewater systems to a higher level of treatment and reduce the human impact on the beaches and lagoons. In 2015/2016 six grants were awarded by the local board and three were taken up. In 2016/2017 eleven grants awarded and one was taken up, although the final numbers at the date of reporting are not confirmed. The local board has not continued this into the 2018 calendar year. Other initiatives include the council providing reduced building and resource consent fees for on-site wastewater system upgrades.



Septic tank pump out truck at Piha Domain 2017.

Suggestions for the future

Funds and effort are being directed towards identifying contamination sources and improving the water quality at the beaches. The council will progressively assess contributing sources of contaminants using the latest DNA methods that identify the species that the *E.coli* or enterococci originates from. Where they are shown to be having a negative impact on water quality the council will address these in future scenario planning and initiatives to achieve improved water quality.

Integrated Watershed Plans and are being prepared by the council as part of its Freshwater Management Plan. The West Coast and Manukau Watershed Plans will provide the basis for overall water improvements in the heritage area.

Funding of activities 2018 to 2023

The funding of the activities are covered within the operating budgets of the local board and council's Regulatory Services, Healthy Waters and Community Facilities budgets. All water quality monitoring and investigations are covered under the council's Healthy Waters department budget. The funding for monitoring and initiatives relating to water quality improvements may be encompassed within the Auckland-wide budget. These programmes and actions are aimed at addressing water quality in, or adjoining, the heritage area. They give effect to achieving the objectives of the Act relating to aquatic ecosystem health and enabling safe recreational use of the heritage area and adjoining beaches.

The council has applied targeted rates to home-owners in the heritage area who have septic tanks to fund septic tank pump-out every three years by a council approved contractor to ensure septic tank maintenance.

2.6 Public feedback – terrestrial and aquatic ecosystems

As discussed in the sections above, the health of the ecosystems of the heritage area are a key concern to the council, public and communities living in the heritage area. The feedback received from members of the public at the meeting held on 15 June 2017 reflected concern about a number of the matters discussed in this section. Refer to Appendix 4 for a record of feedback from the meeting.

Key themes relating to ecosystems was that maintaining the health of the natural environment of the heritage area was fundamental to achieving the objectives of the Act and in this regard, there are concerns that:

Pest plant and animal control

- better roadside weed control and practises are needed by Auckland Transport
- invasive weeds are not being adequately controlled in a number of areas
- possum numbers have escalated in recent years
- Pest Free Auckland needs to be implemented in the heritage area
- local community groups are implementing a number of pest plant and animal control programmes in their local areas.

Biosecurity – kauri dieback

- kauri dieback prevention measures are not working
- use of the Hillary trail should be stopped
- a range of measures should be undertaken, and prevention promoted through social media
- myrtle rust is an added threat to other pressures and threats to the area.

Water quality

- there are sewage overflows around the coast
- action is needed to improve the water quality of streams and lagoons

3 Topic: Natural landforms, landscapes and the night sky

3.1 What is included in this topic

Natural landforms and landscapes and the quietness and darkness of the Waitākere Ranges and coastal areas are heritage features. This topic reports on the state of the natural landforms and landscapes of the heritage area. The natural landforms and landscapes include the coastal areas, the dramatic landforms of the ranges and foothills, the eastern foothills and the subservience of the built environment to the area's natural and rural landscape. The darkness of the night sky is a new topic that was not included in the 2013 Monitoring report.

The state of the natural landforms and landscapes reflect the outcome of the controls that have applied over the past five years under the Auckland Council District Plan – Operative Waitākere Section 2003 (Waitākere City District Plan) in respect of managing subdivision, use and development to protect the natural landforms and landscapes of the heritage area.

3.2 Key findings

Relevant heritage features (section 7 of the Act): 2(a)(vii), (a)(viii), (b), (c), (e), (f), (h), (i), (l)

Summary – state of natural landforms, landscapes and the night sky

- Overall there have been only minor changes from 2013 to the landforms, and landscapes of the heritage area.
- The rural character of the foothills and character, scale and amenity of coastal villages has been retained.
- The majority of the changes have occurred in the coastal villages, particularly at Piha.
- The Auckland Unitary Plan provisions are not reflected in these findings. New subdivision and development under these provisions needs to be monitored to evaluate whether they retain natural landform and landscape values.
- The location, design and maintenance of infrastructure can have a big influence on the character and heritage features e.g. road corridors.
- Baseline data for measuring the darkness of the night sky has been established.

Progress made towards achieving the objectives:

- Overall, the Waitākere City District Plan provisions have achieved the objectives of the Act.
- Two design guidelines have been produced to inform development outcomes within the foothills and bush clad area within the heritage area.

3.3 What we measure changes against

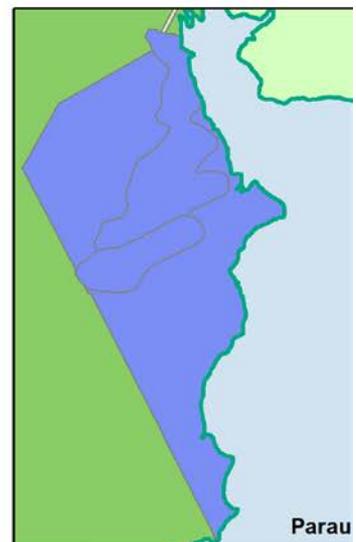
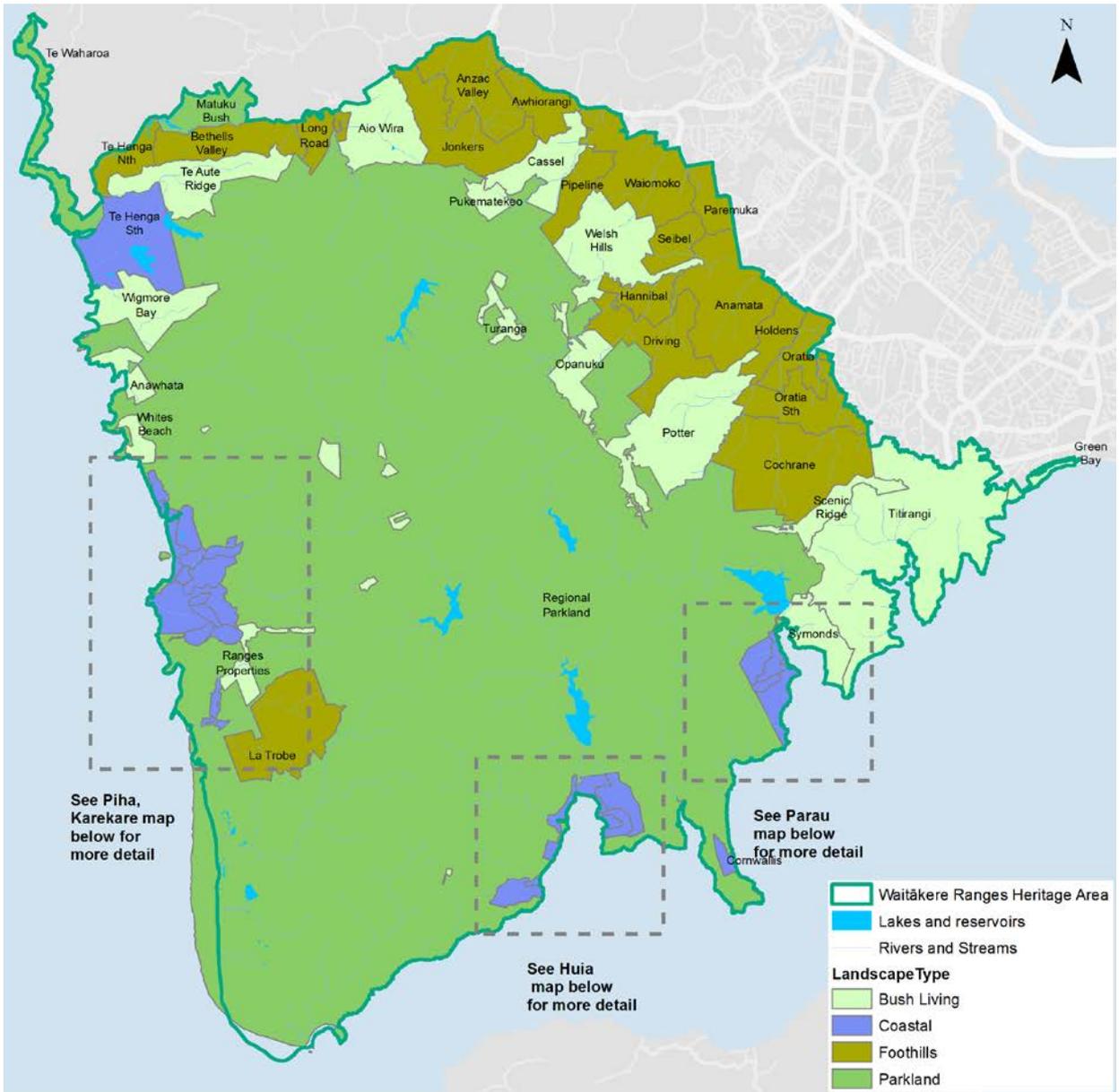
The indicators used to assess the changes between 2013 to 2018 are:

- the extent of change in landscape character since 2013
- the landscape character's sensitivity to change
- restoration potential within the landscape unit.

Landscape studies were undertaken in 2004, 2005, 2006 and 2008 which identified landscape units and features across much of rural Waitākere City, including for most of the heritage area. A landscape report was completed in 2013 based on a comprehensive field assessment and a review of the relevant landscape units. A follow-up landscape assessment was completed in 2017. This section of the report uses the 2017 data to measure changes against the 2013 baseline data. Photographs were taken from the same GPS co-ordinates as the 2013 report so a clear comparison could be made.

Four landscape types were used in the 2013 and 2017 report which are described below. These are shown in Map 7 below.

Map 7: Landscape types and units



Foothills

The foothills are around the eastern edges of the heritage area and have a mixture of landforms, vegetation and land uses including some native vegetation, residential development along ridge top roads, and areas of grazing and horticultural land uses. The upper foothills landscape units fall from the Scenic Drive ridge eastward down the valleys to the Jonkers, Swanson, Opanuku and Oratia streams. The lower foothills are generally less steep than the upper foothills with pockets of native vegetation, particularly in steeper gullies and open rolling hillsides.

The foothills are covered by the Foothills Design Guidelines which is an Auckland Council non-statutory booklet that provides a comprehensive guide to the design and location of built development within the foothills.

Bush Living

The 16 bush living landscape units include parts of the heritage area close to and including the Waitākere Ranges where native forest is dominant. Where development occurs it is nestled amongst the vegetation. Bush living landscapes include Titirangi, Laingholm, parts of the upper Oratia and Opanuku valleys and along the south-eastern side of Scenic Drive North.

The bush living areas are covered by the Building in the Bush Design Guidelines which is an Auckland Council non-statutory booklet that provides a comprehensive guide to the design and location of built development in the bush.

Coastal

In the 2012 assessment there were 36 coastal landscape units in the villages of Parau, Cornwallis, Huia, Karekare, Piha, Anawhata and Te Henga / Bethells Beach. The boundaries of many of these landscape units were drawn around different clusters of residential development thereby excluding adjoining areas of often privately owned land. In the 2017 assessment the units have been simplified and expanded to incorporate the adjoining areas, particularly at Parau, Cornwallis and Te Henga / Bethells Beach and so there are now 34 coastal landscape units.

These villages are diverse but they also have common issues and the same potential changes to the landscape character including vegetation removal, landform modification, the introduction of new buildings and potential built form redevelopment.

Parkland

There are three separate areas within the regional park landscape type. They are the landscape units at Te Waharoa, Matuku Bush Scenic Reserve and the regional park. These areas comprise the majority of the heritage area.

Most of the regional park is covered in regenerating native forest of various ages and stages of development. There are also carefully managed farms within the park, including Pae o Te Rangi Farm in the Bethells Valley, where grazing continues to be used as a land management tool, as well as bush regeneration.

Te Waharoa is a long narrow strip of coastal headland that extends from Te Henga / Bethells Beach northwards to Bartram Bay and incorporates the Te Henga / Goldies Bush Department of Conservation walkway and several different parcels of reserve land, including Māori Reserve land. This is a particularly exposed and wild part of the west coast with only low-growing wind sculpted vegetation hugging the exposed cliff faces and tops. Parts of the reserves are grazed by sheep by the adjoining landowner.

The Matuku Bush landscape unit comprises a dense stand of native forest within the Matuku Bush Scenic Reserve.

All land in the heritage area fits into one of the landscape types. The landscape types are broken down into landscape units based on local landscape characteristics such as topography and settlement pattern. Some of the smaller landscape units have been consolidated for this 2018 report so there are a smaller number of units than there were in 2013 but the same areas have been assessed.

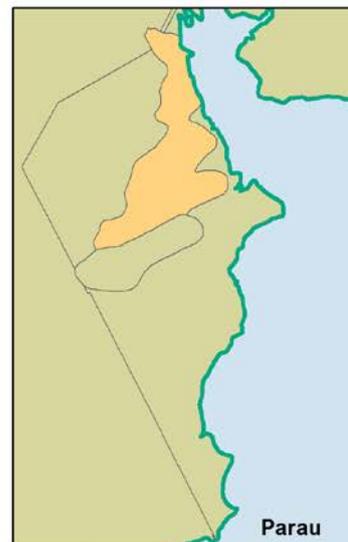
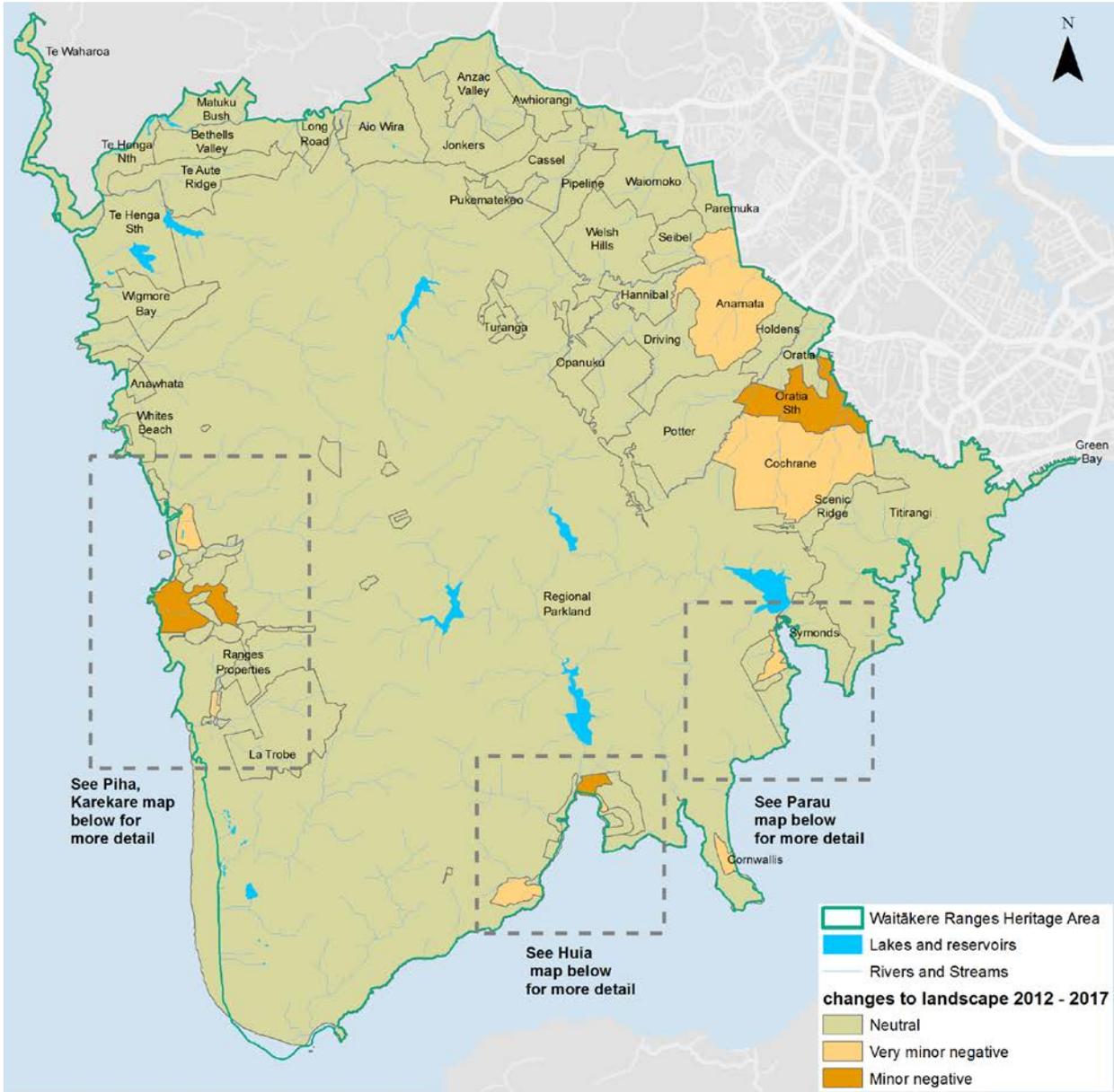
3.4 Changes between 2013 and 2018

Changes to each landscape unit that had an impact on its overall character and qualities (with particular reference to the features identified in the Act) were assessed. An overall rating of the scale and direction of change (positive or negative) was given to each unit. This enables results to be aggregated and compared across the whole heritage area, and compared with the 2013 baseline data.

Much of the heritage area falls within the regional park or conservation land where landscape change is likely to be extremely limited and localised. For this reason, a field-based assessment was not necessary and the regional park was excluded from the main part of the study. This is consistent with the 2013 report.

Map 8 below shows the changes to the landscape character. Further information about the changes in each landscape can be found in Appendix 9.

Map 8: Changes to landscape character 2012-2017



3.4.1 Summary of findings

Overall there have been minor changes to the natural landforms, landscapes and rural character. Only minor or very minor negative changes were found within individual landscape units and fewer of these were found within individual landscape units than in 2012. The negative changes identified were sometimes the result of infrastructure development constructed by Auckland Transport. In response to the findings in the 2013 Monitoring Report, AT has completed an approved draft of the Waitākere Ranges Urban Design Guidelines following public consultation in 2015 and meetings with the Waitākere Ranges Local Board in 2016. The approved draft is awaiting inclusion into the larger AT Code of Practice document.

Table 8 below shows the percentage breakdown of landscape units where change to the heritage features and landscape character were identified. Map 8 above shows the same results geospatially.

Refer to Appendix 9 for the detailed results of landscape unit assessments.

Table 8: Findings of field assessments for each landscape unit

Landscape unit	Change from 2013 to 2018					TOTAL Number of landscape units
	Minor negative	Very minor negative	Neutral	Very minor	Minor positive	
Foothills	1 [5.5%]	2 [11%]	15 [83.5%]			18
Bush Living			15 [100%]			15
Coastal	2 [6%]	6 [17%]	26 [74%]	1 [3%]		35
Parkland			3 [100%]			3
TOTAL (number)	3	8	59	1		71

The foothills and rural character

In the foothills landscape units the ongoing implementation of the Oratia and Swanson Structure Plans, now incorporated into the Waitākere Ranges Heritage Area Overlay in the Auckland Unitary Plan, means that there remains potential for further change. It is clear from both the objectives and heritage features of the Act that the retention of rural character within the foothills is important and must be ensured when development does occur.



Shaw Road (Oratia South landscape unit). New development within subdivision in 2017. This recent subdivision is assumed to be in line with the Oratia Structure Plan. This development could change the rural character of this part of landscape unit. If however, the Foothills Design Guidelines have been used, then the combination of the new dwellings and the extensive planting are likely to have little impact on the heritage features of this part of the heritage area once planting has become established. (Source: Melean Absolum)

The appreciation of the landscape's rural character and amenity within the heritage area comes from the vistas and views obtained whilst travelling along the road network, particularly from those roads which occupy the higher ridge-tops. The perception of rural amenity is determined by the relationship of visible expanses of the 'natural' landscape, both 'wild' and 'managed', and the balance of this natural landscape with the manmade structures and elements within it. In some instances the extent of landscape actually visible from the road is limited by foreground topography or vegetation. In other instances, views of the rural landscape extend well beyond the road. The maintenance of a view from the road with few structures is critical to the perception of a rural character in the foothills landscape units. As further development occurs, green areas within the landscape become even more critical to ensure compliance with the Act.

There are areas within the foothills landscape units where lineal development has already occurred along the road network, such as parts of Scenic Drive North. This type of lineal development close to the road encroaches on the most sensitive portion of the view corridor. On some of the smaller sites, rural activities are also less evident and they have a much more domestic character. If further development of this sort occurs, it has the potential to undermine the Act which seeks to protect, restore and enhance the 'intricate

pattern of farmland, orchards, vineyards, uncultivated areas, indigenous vegetation and dispersed low density settlement'.¹⁶



New horticultural development in Henderson Valley Road (Anamata landscape unit) is a positive reinforcement of the rural character of this area. (Source: Melean Absolum)

These are all matters that are addressed in the Foothills Design Guidelines. These guidelines contain a variety of techniques to assist all parties involved in the consenting and development process within the foothills landscape units to achieve appropriate development that not only complies with district plan requirements but also achieves the objectives of the Act.

Bush Living

The assessments found very little change in the landscape character of the bush living landscape units. As was identified in 2012, the greatest threat to the landscape character of the bush living landscape units is the loss of vegetation from either subdivision or development. However, if earthworks and vegetation removal are minimised, the bush-clad areas of the bush living units clearly demonstrate they are able to accommodate reasonable population densities with only minor impacts on landscape character.

Coastal

Adverse changes to the heritage features of individual landscape units were greatest within the coastal landscape units. These changes have arisen as a result of development

¹⁶ Section 7 (2) (i) (iii) of the Waitākere Ranges Heritage Area Act 2008.

within the landscape units, including new buildings on recently or historically subdivided sites. In at least one instance, the loss of coastal pōhutukawa has resulted in the change in landscape character.



Image on left: View of larger houses above Cornwallis Beach in 2012 **Image on right:** The same view in 2017; the house is highly visible from the wharf as a result of the loss of coastal pōhutukawa trees and foreshore vegetation. (Source: Melean Absolum)



A new house in Little Huia was under construction in 2012. The form, height, materials and colour of the building and the associated garden development all ensure that this new house sits comfortably within the landscape unit and does not undermine the heritage features (2017). (Source: Melean Absolum)

At both Piha and Karekare, further development can be anticipated on currently vacant lots. In Karekare, the majority of these sites appear to be along the valley floor where the ability for buildings to be integrated into the existing character is relatively straightforward.



The new, dark coloured dwelling on Karekare Road settles well into the character of this part of Karekare. (Source: Melean Absolum)

At Piha a number of vacant lots sit within the higher, bush clad slopes that surround the village. Here the successful integration of new development will be dependent on the design and location of new buildings, including their scale, form, colour and texture, as well as the extent of earthworks and vegetation removal required in their construction. In these situations, very careful consideration of design proposals will be critical to integrating the development within the coastal village.



New driveway on Garden Road, Piha. The new concrete will darken over time and new native planting will successfully integrate development into this landscape unit. (Source: Melean Absolum)

Parkland

The Parkland landscape units display the least amount of change in their heritage features and landscape character. It is anticipated that this will continue to be the trend in the future, with minimal development occurring on publicly owned and protected land.

3.4.2 Vulnerabilities to future change

The field assessments considered the extent of vulnerability and sensitivity to change within the various landscape units as well as monitoring the extent of change over the last five years within the heritage area. The greatest sensitivity was found in the coastal units, although sensitivity to inappropriate development still exists within the foothills landscape units and to vegetation removal in the bush living landscape units.

As had been found during the earlier coastal villages assessment reports, the popularity of beach locations in close proximity to Auckland has led to some developments in the past that aren't sympathetic to the natural landscape, particularly at Piha. The potential for further similar development remains. Vacant sites and those with only modest older houses both have the potential for new development in the future.

While the character of many of the landscape units within Piha is already the result of extensive development, that is not the case for the other coastal villages. Although some development has occurred over the last five years in all the other villages, except White's Beach, this is neither extensive nor of sufficient scale to have had much effect on the character of these landscape units. Nevertheless, the potential for substantial change remains high. For example, the row of modest houses along the beach front at Huia have attractive views across the bay to Jackie Hill, the Waitākere Ranges and the Manukau Heads. Redevelopment of any of these houses could, if not carefully designed, have a dramatic effect on the landscape character in this sensitive location. The opportunities for integration of any large new house here are limited by the size of the sections and proximity of adjacent buildings.

It was also clear from the field assessment how important vegetation is to the successful integration of development into the coastal and bush living landscape units. Of particular importance are the mature coastal pōhutukawa trees within the various coastal villages which provide a sense of cohesion at a suitable scale amongst the often disparate styles of buildings. As has already been pointed out, the loss of such vegetation has already had a minor adverse effect on the character of Cornwallis.

There is also vulnerability to poorly integrated development within the more open foothills units. Here, the ability to integrate buildings within their setting is managed by the Auckland Unitary Plan provisions. It appears that permitted development within these areas has the potential to undermine the rural character of the more open parts of these landscape units. Compliance with the Auckland Unitary Plan, to ensure rural character is protected, relies on the necessity for a resource consent to provide the opportunity for any proposed new development to be carefully assessed.

Additionally, there remain areas within the Foothills landscape units, such as the Sapich Winery and Lockington Lyon property in Henderson Valley, which, because of their size, location and landform, create a gateway to the heritage area heralding the change from a suburban to a rural character. Redevelopment of these larger rural properties has the potential to undermine the rural character. Well-considered development of the Lockington

Lyon property was incorporated into the Henderson Valley / Opanuku Local Area Plan and has been incorporated into the Auckland Unitary Plan provisions for the Waitākere Ranges Heritage Area overlay.

3.4.3 Conclusion and progress in achieving the objectives of the Act

Although there have been another five years of development in the heritage area, the overall effects of this development have been minimal. The consenting process is resulting in appropriate development being undertaken, which in turn creates minimal change to the heritage features of the heritage area. Overall, the foothills still act as a buffer and the built environment remains subservient to the natural and rural landscape in the heritage area.

Although it is difficult to be sure that development seen on the ground has been consented under the new Auckland Unitary Plan provisions or under the legacy Waitākere City District Plan provisions, the planning framework within the Auckland Unitary Plan seem to be ensuring that only appropriate development is occurring in most situations.

3.5 Darkness of the night sky

The darkness of the Waitākere Ranges and the coastal parts of the heritage area are heritage features in the Act.



Long exposure photo of the Milky Way at Medlands Beach, Great Barrier Island 2017 (World's first island Dark Sky Sanctuary)

The 2013 Monitoring Report did not include the darkness of the night sky as a topic. Since then a survey and assessment has been undertaken. Measurements of the night sky were taken on three separate nights and over 33 locations. The average Night Sky Brightness for the heritage area was found to be 20.55 magnitude per arc second squared (mpsas). This corresponds to the International Dark Sky Association's Bronze Standard. In comparison a typical Auckland suburb would be approximately 17-19mpsas and well-lit areas of the central business district would be approximately 16-16mpsas. This survey found that the western parts of the Waitākere Ranges facing away from the central business district, with low resident population and less street lights are the darker areas within the heritage area. The results from the Dark Sky Assessment can be found in Appendix 10.

The data collected for this 2018 report will be the baseline data for the 2023 report.

3.6 Suggestions for the future

Waitākere City District Plan / Auckland Unitary Plan

Subdivision, use and development over the last five years have been undertaken under the Waitākere City District Plan. The Waitākere City District Plan is now replaced by the Auckland Unitary Plan and the effectiveness of the Auckland Unitary Plan provisions needs to be closely monitored to ensure that they retain the heritage features.

Local area plans are important tools provided for in the Act for identifying and protecting the landscape character of different parts of the heritage area. Monitoring is also required to determine whether development permitted under the Auckland Unitary Plan provisions retain the landscape character identified in local area plans.

Foothills Design Guidelines and Building in the Bush Guidelines

These guidelines provide a useful toolbox of methods for ensuring that development within the foothills and bush living landscape units is appropriately designed. It is important that these guidelines are made widely available and are used by planners, applicants and their advisors at an early stage of the design process to ensure appropriate outcomes.

Much of the heritage area retains a rural or coastal character with suburban infrastructure being confined to parts of the landscape units closest to the eastern boundary. This non-urban character, arising from the subservience of the built environment to the area's natural and rural landscape, is an important heritage feature of the heritage area. The manner in which the council manages the public / private interface is very important and can have a big influence on the character and heritage features. It is important that council and council-controlled organisations ensure that landscape character values of the

heritage area are retained when providing infrastructure or undertaking works in the heritage area.

Photographic recording of landscapes

It is often very hard to record in photographic form the character of different landscape units. It may be appropriate in future heritage area monitoring work to separate out the photographs which provide a good illustration of the landscape character of each landscape unit from the rest. Other methods may be more suitable such as using Google Street View images and the possibility of using unmanned aerial vehicles (UAVs) for in-field photography.

Review of landscape unit boundaries for next report

The boundaries of the 71 landscape units were identified for a different purpose than from their use in field assessments to monitor landscape changes. A decision was made in 2004 to draw the boundaries of the foothills and bush living landscape units along cadastral boundaries. Landscape unit boundaries in the coastal landscape units do not have the same constraint. It is recommended the landscape unit boundaries are reviewed at the beginning of the next assessment for the State of the Waitākere Ranges Heritage Area 2023 report.

Darkness of the night sky

Measurements of the night sky should continue to be undertaken to monitor changes to the levels of darkness.

3.7 Funding implications of activities

A landscape architect will need to review the landscape unit boundaries and assess changes to the landforms and landscapes for the next monitoring report and this will need to be part of the budget.

4 Topic: Recreational use of the heritage area

4.1 What is included in this topic

This section of the report discusses the recreational uses within the heritage area, the impacts of visitors and how these impacts are being managed. Comparisons between the data used in the 2013 Monitoring Report and this report are used where possible. These determine the effectiveness of the management of recreational uses, visitors and how that achieves the objectives of the Act.

The area provides for opportunities for wilderness experiences, recreation and relaxation. This is identified as one of the heritage features of the area. The Act also recognises the importance of the regional park as an accessible public place with significant natural, historical, cultural, and recreational resources. The objectives of the Act seek to protect, restore and enhance the heritage features and protect in perpetuity the regional park for (amongst other matters) the benefit, use and enjoyment of New Zealanders. Whilst the regional park covers a large proportion of the heritage area, local parks and reserves also have a vital role in meeting the recreational needs of local communities.

The Waitākere Ranges and the coastal beaches have been popular destinations for visitors since the late 1800s for swimming, picnicking, tramping, and camping.

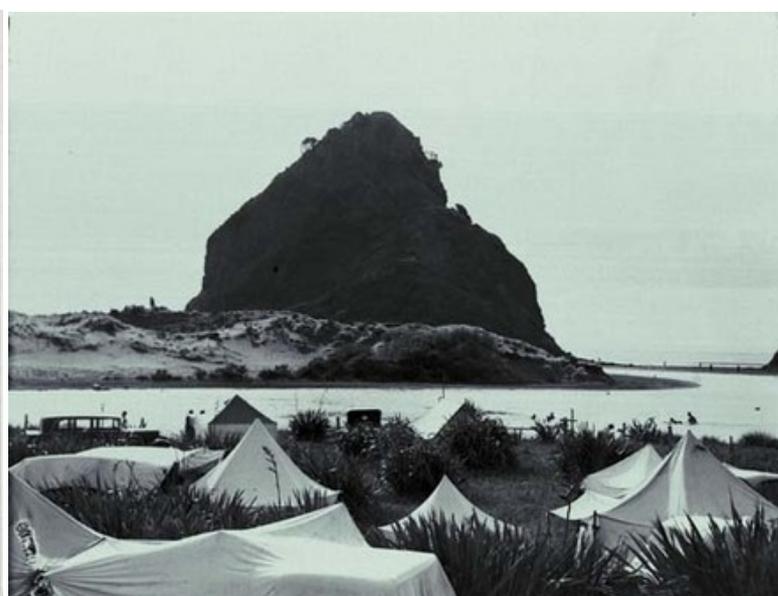
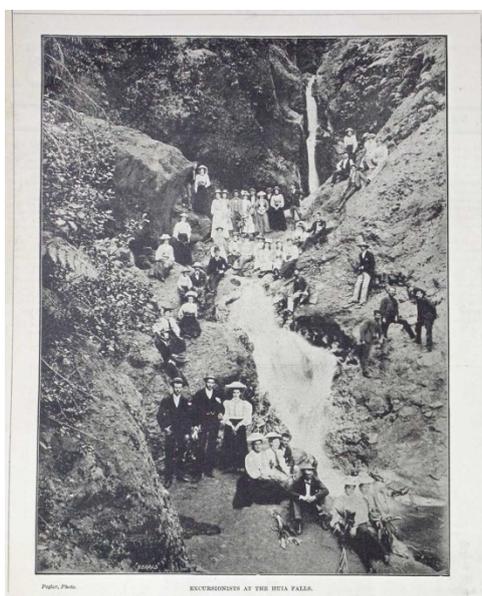


Image on left: A group portrait of men and women arranged beside the waterfalls at Huia (18 June 1898). (Source: Sir George Grey Special Collections, Auckland Libraries (AWNS-18980618-2-1)). **Image on right:** Piha, view across stream to Lion Rock with group of tents and vehicles in foreground, circa 1910 (Source: New Zealand Herald Collection – Auckland Museum – PH-NEG-H1087).

Along with the increasing popularity of the various recreational “hotspots” such as Piha, Karekare and Te Henga / Bethells Beach, there are other ‘newly discovered’ areas which are beginning to experience more visitors. The coastal beaches, bush tracks and landscape features of the heritage area are also actively promoted by tourist agencies and businesses as destinations within Auckland for both domestic and international visitors. This promotion of the heritage area as a visitor destination puts pressure on these areas and the accompanying infrastructure.

As the population of Auckland increases, the regional park, along with the local parks and reserves, will continue to be an important recreational resource. The management of visitors will need to ensure that other values such as wilderness experiences, the quietness and darkness, and the needs of the local communities are provided for and protected.

Kauri dieback continues to be a significant issue within the regional park. Ongoing monitoring of visitors and the effects of visitor activity on the heritage features in conjunction with the management of the spread of kauri dieback will be essential in determining the requirements for future management within the heritage area.

4.2 Key findings

Relevant heritage features (section 7 of the Act): 2(e), (g), (m)

Summary – state and effects of recreational use

- The main reasons for visits continues to be for time-out and relaxation (picnics, water sports, beach, casual walks) or getting close to nature.
- The upward trend of visitor numbers to the regional park continues.
- Piha attracts more visits than the other beach locations combined, followed by Te Henga / Bethells Beach, Karekare and Anawhata.
- The number of concessionaires has increased from 54 in 2013 to 102 in 2017.
- Filming continues to be the largest commercial activity in the heritage area.
- Off-track and unmanaged activities, including geocaching, need to be monitored. Use of closed tracks and cycling on tracks (other than the Beveridge Track), needs to continue to be monitored. Evaluation of existing measures and potential new measures will also be required to ensure that these activities do not contribute to the spread of kauri dieback.
- There needs to be consistent and co-ordinated monitoring and methods of recording data across council and CCOs to be able to make robust comparisons.
- Coordination of activities and consistent communication is required with tourism agencies and businesses that promote the heritage area as a place to visit is required. This will ensure that messages are well communicated and understood such as those about kauri dieback and the reasons for track closures and phytostations.

Progress made towards achieving the objectives:

- Acquisition of additional areas of land at Taitomo, Karekare (next to McCreadies Paddock) and Piha (previously Ministry of Education land) and the development of new walkways in local reserves, contributes both to the opportunities within, and the public accessibility to the heritage area.
- The various plans and strategies (RPMP objectives, policies and special management areas, local reserve management plans, design guides, regional park designation etc.) are management tools which assist in giving effect to the Act.
- The council has a program of ongoing maintenance and upgrades to the tracks and other visitor related infrastructure which seeks to minimise the potential of visitor impacts on the other values of the heritage area i.e. kauri dieback measures such as boardwalks and gravelling tracks in high-use areas to prevent soil matter being transported from one area to another.
- Whilst there are a number of council departments and CCOs collecting data on visitor numbers, this is still largely an uncoordinated approach in terms of the methods used, locations monitored and information shared. There is also little systematic information on the visitor satisfaction with, or use of, local parks and reserves.

4.3 What we measure changes against

The 2013 Monitoring Report used the following indicators:

- popularity ratings for recreational activities – regional park and coast
- number of visitors to popular locations and tracks
- accommodation use
- permits granted for other controlled and discretionary activities in the regional park
- visitor satisfaction ratings.

Most of the data for these indicators was derived from the regional park monitoring programme and administrative and management records. This was supplemented by traffic counts outside the regional park during the 2012/2013 summer period and surf lifesaving club records.

This report uses the following indicators:

- number of visitors to popular locations and tracks
- accommodation use
- concessions and permits for controlled and discretionary activities in the regional park
- visitor satisfaction ratings
- traffic counts.

Comparisons have been undertaken to determine whether there are any new trends in the use of the regional park and the coastal areas. In some cases, it has been necessary to

use other data sources to establish whether there has been a change in visitor use. In some cases monitoring has not continued between 2012 and 2017 and sometimes inconsistencies in the data mean that reliable comparisons cannot be made.

There is still a lack of detailed information on the use of, or visitor satisfaction with local parks and reserves, as previously noted in the 2013 Monitoring Report. Local parks and reserves have been added as a new section to this topic of the report. Where possible data from other sources i.e. Annual Resident Surveys has been used to provide some indication of resident satisfaction with the provision of and frequency of visits to local parks and reserves.

A survey¹⁷ undertaken by Auckland Tourism Events and Economic Development (ATEED) to determine the number and origin of visitors to the Waitākere Ranges Local Board area has the potential to be used as a new source of data for the next monitoring report in 2023. ATEED intend to complete the survey approximately every two years, and the first survey could be used as a baseline.

4.4 Changes between 2013 and 2018

In order to be able to make comparisons between the 2013 Monitoring Report and this report the same format and headings have been used. In some cases, trends have been compared rather than a direct comparison between the individual data sets. This is because comparable data was unavailable or the monitoring has been undertaken in different locations using other methods.

4.4.1 Visitor attractions and facilities

Popular places to visit include the west coast beaches, the Manukau Harbour beaches, the local parks and reserves, and the regional park. Activities in these locations include surfing, swimming, barbeques, picnics, sight-seeing, boating, fishing, camping (where permitted), casual walking and tramping.

Landscape features such as waterfalls (Kitekite, Karekare, Cascades and the Fairy Falls) and popular lookout spots (such as Lion Rock, the Tasman Lookout, the Arataki Visitor Centre, Mt Donald McLean Lookout, and Parkinsons Lookout) are other foci of visitor activity.

The regional park contains approximately 264 kilometres of walking and tramping tracks which cater to a range of experience from the casual walker to the seasoned tramper. The Arataki Visitor Centre plays an important role in providing information about the regional park. It runs a range of educational programmes and conveys important messages about care and stewardship of the environment of the heritage area.

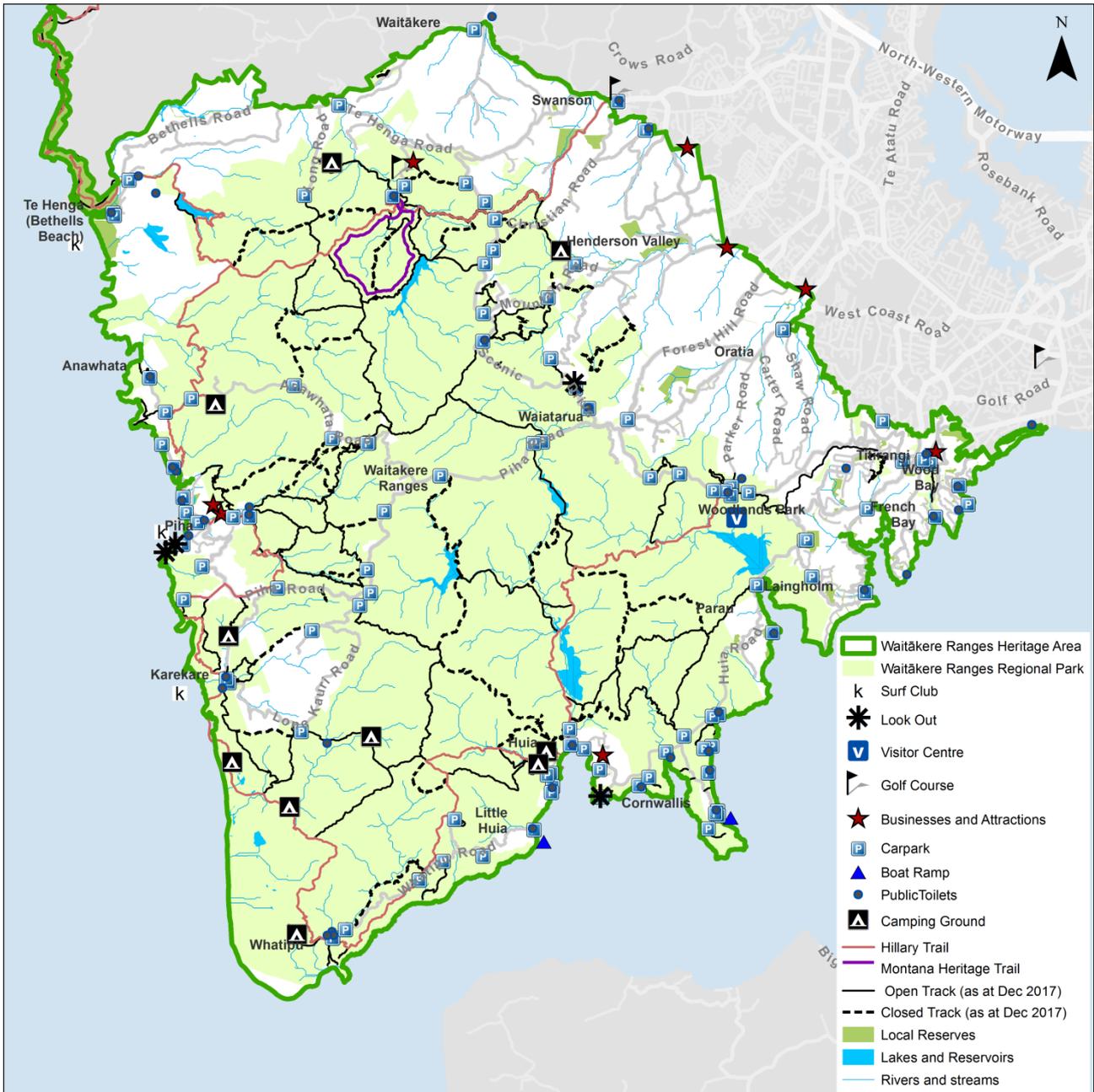
¹⁷ Visitor numbers to Waitākere Area, Auckland Tourism, Events and Economic Development/Quious, March 2017.



Arataki Visitor Centre.

Other visitor attractions include wineries and private visitor-based businesses and accommodation, galleries, cafes, restaurants, local markets, and regular festival and sporting events. This is discussed further below in this topic in the section titled 'Visits to other attractions/events'. Map 9 shows the major visitor attractions and facilities in the heritage area.

Map 9: Major visitor attraction and facilities



4.4.2 Local parks and reserves

There are 120 local parks and reserves covering approximately 200 hectares within the heritage area. The local parks and reserves differ in size, character and use. The local parks and reserves network includes the Te Henga / Bethells Beach recreational reserve, 24 Piha reserves, seven reserves located within the Karekare Valley, and approximately 80 local parks and esplanade reserves throughout the rest of the heritage area.

Local parks and reserves serve an important purpose for the communities that surround them. They are often the location of playgrounds, community buildings, kindergartens, playcentres, open space for recreational use and community events. Some contain infrastructure such as picnic areas, toilets and boat ramps whereas others are protected bush-clad reserves and esplanades. Many have formed pathways and shortcut options for pedestrians in the residential communities.

These reserves also contribute to the wider network and offer areas of green space within the built-up residential environment. The Manukau Harbour foreshore reserves have a strong connection to the dynamic coastal process of the harbour environment and provide the predominant linkage, and in most cases, the buffer between the coast and residential areas.



Huia Domain Playground.

4.4.3 Main reasons for visits

The 2013 Monitoring Report identified that there was limited information on the use of local parks and reserves as there was little systematically collected data available. This continues to be the case. Therefore the following sections focuses more on the use of the regional park where there still has been a program of data collection similar to that in 2013.

A visitor profile and satisfaction survey was undertaken at key locations within the regional park by the council in June 2014¹⁸. In this survey, respondents were asked to provide details on ethnicity, age, income, gender, satisfaction with facilities provided, where they were visiting from, and the reasons for their visits. Table 9 below shows the reason for visits to the various locations which were included in the survey. The results show that visitors often had more than one reason to visit the heritage area.

Table 9: Reason for visit to regional park locations

Location	Reason for visit				
	To socialise in large groups (%)	Part of a group going for drive (%)	To get close to nature (%)	For time-out and relaxation (%)	For active sports pursuits (%)
Kakamatua (n=154)	18	15	51	77	21
Piha (Glen Esk) (n=75)	30	30	47	74	30
Arataki (n=120)	11	37	50	50	29
Karamatua (n=83)	18	30	77	67	48
Whatipu (n=108)	16	32	62	58	61
Cascade-Kauri (n=18)	18	35	89	71	78
Karekare (n=138)	13	35	68	69	30
Cornwallis (n=131)	30	20	56	85	15
Lake	32	28	40	66	33

¹⁸ Auckland Council Regional Parks 2013/2014 Visitor Profile and KPI Research Results, Captivate, June 2014.

Wainamu (n=92)					
<p>Notes: Results have been taken from individual park profiles/visitor satisfaction reports.</p> <p>n = number of individuals surveyed</p> <p>surveys undertaken twice in each park between January and May</p>					

The results above show the main reasons for visiting is for time-out and relaxation (picnics, swimming, visit beach, casual walks) or to get close to nature. Whilst the number of respondents is relatively low, Whatipu and Cascade-Kauri also appear to be used for active sports pursuits (such as orienteering, running and tramping). This is generally consistent with the 2013 Monitoring Report, which used data from a 2005 study of what Auckland residents valued about regional parks, where walking and tramping were the most popular activities followed by beach activities (walking, sunbathing, surfing, swimming etc.)



Image top left: surfers at Piha. **Image top right:** trampers on part of Hillary Trail.
Image bottom left: Piha Domain Campground. **Image bottom right:** Cornwallis Beach.

4.4.4 Level of visitor activity

The graph below (Figure 6) shows the visitor estimates for selected locations in the regional park over the period 2006 to 2016 (Note: the 2013 report included data from 1997 to 2012). Overall, there is a trend of increasing visitor numbers in the Waitākere Ranges.

Figure 6: 10 year trend of visits to the regional park

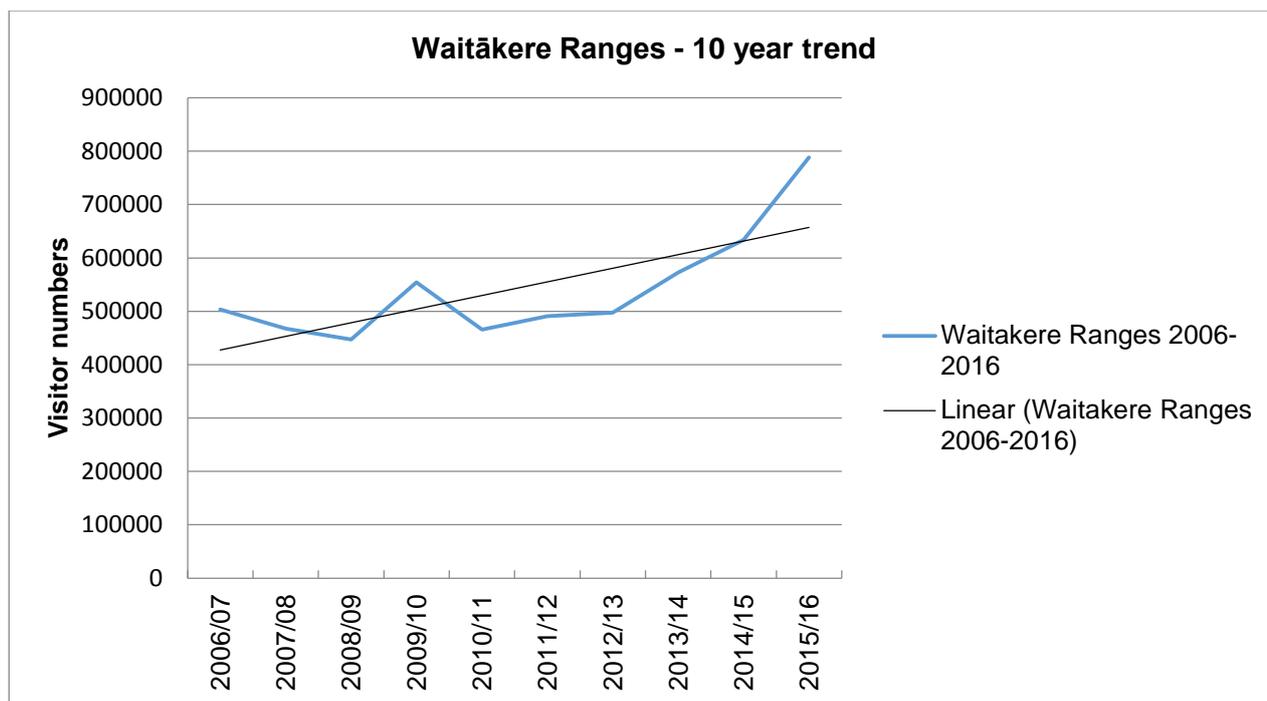


Table 10 below summarises estimated visitor numbers based on vehicle counts at several key locations in the regional park. The 2011/2012 figures have been used as the baseline. These numbers show there is an increasing trend of visits across four of the eight key locations (Cornwallis, Piha, Lake Wainamu and the Fairy Falls). Visits to the Arataki Visitor Centre and Whatipu have remained relatively stable. The increase of visits at Piha (Glen Esk) may be a result of the car park counter being relocated to include vehicles entering the parking overflow area at the entrance to the Piha Mill campground. There is no documented reason for the decrease of visits to the Karamatura and Cascades-Kauri tracks. There were several track closures within the vicinity of the Karamatura and Cascade-Kauri tracks in 2012 but this does not explain the continued increases after 2012 or the decrease between 2014/2015 and 2015/2016.

Table 10: Number of visits to key locations in the regional park

Number of visits to key locations 2011/12 to 2015/16					
Location	2011/12	2012/13	2013/14	2014/15	2015/16
Arataki	188,827	172,337	178,592	180,957	183,884
Cornwallis	70,087	74,490	91,239	84,451	92,340
Karamatura**	26,495	28,595	33,805	40,612	29,901
Whatipu	51,568	50,920	54,778	53,150	49,840
Piha (Glen Esk)	41,730	48,061	65,692	76,152	155,447
Cascades - Kauri	95,164	105,923	130,974	175,864	73,581
Lake Wainamu**	4478	4478*	3810	5206	5811
Fairy Falls**	12,419	12,419*	14,124	17,269	17,881
Totals	490,768	497,223	573,014	633,661	608,685
Notes:					
<ul style="list-style-type: none"> • *missing data (average adjacent months or equivalent months/years) • **Additional locations from 2013 report – Karamatura, Lake Wainamu and Fairy Falls • This data can only be used as indicative due to inaccuracies in the readings, changes to where monitors were placed and locations where not all entrances are covered by monitors. 					

4.4.5 Track monitoring

The 2013 Monitoring Report included track count data at certain locations within the regional park. A meaningful comparison using the same locations as in the 2013 Monitoring Report is not possible as the number of monitors was reduced between 2013 and 2017. This is partially due to mechanical failures with the monitors resulting in inaccurate data, and the concentration of monitoring on tracks closed for the purpose of kauri dieback protection. As at 31 November 2017, there were 27 tracks being monitored with 20 of these being closed tracks.

4.4.6 Vehicle counters

Piha and Te Henga / Bethells Beach, along with many of the beaches along the Manukau Harbour contain local parks outside of the regional park. Auckland Transport has undertaken annual vehicle counts at key routes into some of these west coast and Manukau Harbour beach locations (refer to Table 11 below).

Table 11: Vehicle counts at specific locations

Destination	Date	Total number of cars surveyed (in direction of destination)	7 Day Average Total (number of cars)	Estimated number of visitors	Total – estimated number of visitors (2 weeks)
Karekare (Piha Road to Bridge)	22/12/2016-28/12/2016	2257	322	5868	12719
	29/12/2016-4/1/2017	2635	376	6851	
Piha (Anawhata Road to Bridge)	22/12/2016-28/12/2016	14,190	2027	36,894	78887
	29/12/2016-4/1/2017	16,151	2307	41,993	
Anawhata Road (end of seal to Chateaux Mosquito Track*)	22/12/2016-28/12/2016	255	36	663	663
	29/12/2016-4/1/2017	-		-	
Te Henga - Bethells Road (Wairere Road to Duffy Road)	22/12/2016-28/12/2016	4833	690	12,566	24984
	29/12/2016-4/1/2017	4776	682	12,418	
South Titirangi Road (Tinopai Road to	10/2/2015-16/2/2015	-	948	2465	-

Wootons Lane)					
Cornwallis Road (Huia Road to speed restriction)	19/02/2015-26/02/2015	-	567	1475	-
Whatipu Road (Huia Road to speed restriction)	19/2/2015-26/02/2015	-	265	689	-
South Titirangi Road (Arapito Road to Boat ramp)	3/05/2017-09/05/2017	658	94	244	-

Notes:

- Estimated number of visitors has been calibrated using the average of the vehicle occupancy for Piha (2.6 people per vehicle) 2015/2016 and applied to all traffic count data for all of the beach destinations.
- Traffic counts have been taken during the holiday period and so will include local traffic as well as visitors.
- Traffic counts into Te Henga / Bethells Beach only capture one route so count may be underestimated.
- *Chateaux Mosquito track closed due to ongoing kauri dieback disease prevention measures.
- 2015 data is from a different source which did not include the total number of cars surveyed.

The traffic count data indicates that Piha, with approximately 5634 average daily visitors over the Christmas-New Year two-week period, attracts more visits than all of the other beach locations combined, followed by Te Henga / Bethells Beach, Karekare and Anawhata. Direct comparisons can't be made between the traffic count data in the 2013 Monitoring Report and the 2016 traffic count data as this data was collated differently. However, the trend shows a consistent order of popularity for the above destinations (Piha, Te Henga / Bethells Beach, Karekare, Cornwallis, Anawhata and Titirangi Beach).



Image on left: Southern end of Piha from Lion Rock (Anniversary Day 2018). **Image on right:** Karekare.

Vehicle counts for Cornwallis and several sections of Titirangi Road have also been included. However, traffic counts were undertaken during a different time period at the monitoring site locations, and from different data sources. This makes comparisons to the data in the 2013 Monitoring Report difficult. Whatipu Road traffic counts have also been included as a new piece of data. The inclusion of this data will provide a baseline on which to make comparisons going forward to the next five-year monitoring report.

4.4.7 Surf club visitor counts

The four west coast surf clubs at Te Henga / Bethells Beach, United North Piha, Piha (South) and Karekare undertake estimated visual head-counts of visitors on the beach. These head-counts are recorded during the peak of each day over the summer surf club season (Labour Weekend to Easter). Table 12 shows the sum of the estimated peak head-counts over the season. These counts continue to highlight the popularity of Piha as a destination of visitors to the west coast beaches.

Table 12: Estimated season totals of peak headcounts at beaches monitored by surf clubs (Surf Lifesaving Northern Region)

Summer Season	Te Henga / Bethells Beach	Karekare	Piha	United North Piha
2011-2012*	13,059	9,302	28,223	16,662
2012-2013	14,397	10,808	32,020	20,404
2013-2014	12,830	8,728	25,599	16,477
2014-2015	14,152	18,226	32,091	22,731
2015-2016	14,996	13,308	25,772	18,209
2016-2017	14,559	28,608	30,242	12,872

Notes:

- 2011-2012 figures taken from the 2013 Monitoring Report have been included to provide a base for comparison.



Image on left: surf lifesaving flag at Piha. Image on right: Te Henga/Bethells Beach.

4.4.8 Regulated activities in the heritage area

Certain activities occurring in the regional park are regulated under the RPMP and need approval from the council. These activities fall into two categories:

- Controlled activities – camping, staying in baches and lodges, recreational horse riding, abseiling at Karamatura and booking designated picnic sites. A permit issued for any of these activities is subject to standard approval conditions.
- Discretionary activities – a formal application must be made to the council for short-term activities, concessions (commercial and non-commercial), longer-term activities, such as leases and licences, and which involve exclusive use of parts of the regional park or a park facility. These will not be granted if they are considered to have a potential detrimental impact on the values of the regional park.

There is a limit of 50 people for casual groups visiting the regional park. There is also a limit on the number of organised sports involving 50 or more participants in some locations in order to protect sensitive environments and the experience of other casual visitors. However, the limits do not apply to filming, weddings, educational groups, conservation programmes, community fairs, or similar group activities and events or concessions. These are limited only to the extent that the activity needs to comply with the RPMP. Each application made to the council is assessed against a checklist of the objectives and policies of the RPMP and the purpose and objectives of the Act. The council can decline applications if, in its opinion, the frequency and extent of the activity will result in an unacceptable level of degradation of the park environment or the loss of the quality of visitor experience. Consent from Watercare is also required where these activities occur within Watercare's designations or within the water catchment area.



Karekare Horse Races, Karekare Beach (2017).

Controlled activities

A comparison of controlled activity approvals between 2012 and 2017 is shown below in Table 13.

Table 13: Controlled activities in the regional park - 1 July 2012 to 30 June 2017

		2011/2012*	1 July 2012- 30 June 2013	1 July 2013-30 June 2014	1 July 2014 - 30 June 2015	1 July 2015-30 June 2016	1 July 2016-30 June 2017	Total for 5 years
Campgrounds (all)	Total persons campgrounds	6186	6123	7458	7488	7483	8730	37282
Baches	Total nights baches	561	588	653	556	583	870	3250
Lodges	Whatipu	9338 persons	-	2111	4517	4902	5819	17349
Designated Bookable sites	Cornwallis – number of bookings	79 bookings	73	93	99	82	92	439
Recreational Horse Riding	2016-2017	N/A	N/A	N/A	N/A	N/A	1346	1346
Notes:								
<ul style="list-style-type: none"> 2011-2012 figures taken from the 2013 Monitoring Report have been included to provide a base for comparison. 								

The figures show that there has been a steady increase in the use of the campgrounds, baches and the lodge at Whatipu from 2013 to 2017. The number of bookings at the designated bookable site at Cornwallis has remained relatively stable.

The types of discretionary approvals are outlined below in Tables 14 and 15. These are split into two categories: non-commercial activities involving private individuals, community groups or non-profit organisations; and commercial activities.

Table 14: Non-commercial discretionary activity approvals in the regional park

Types of activity	2012		2013		2014		2015		2016		2017 (up to July)	
	Events	Estimated numbers on site	Events	Estimated numbers on site								
Air Activity	1	1	-	-	-	-	-	-	-	-	-	-
Concerts/ Festivals	2	550	1	100	-	-	-	-	-	-	-	-
Filming/ Photography	17	115	-	-	-	-	-	-	1	4	-	-
Large group activity	8	1200	11	2015	7	885	1	420	4	350	2	225
Cultural harvest	4	39	2	2	-	-	1	1	2	30	-	-
Research (educational, mostly student groups)	8	36	11	262	7	344	17	458	17	463	9	324
Sporting events (including clubs)	9	995	1	100	6	1351*	4	1080	2	350	1	200
Weddings	32	1691	29	1597	28	1893	15	778	16	1426	4	300
Totals	81	4627	55	4076	48	3372	38	2692	42	2623	16	1049
Notes:												
*Lactic Turkey (n=650)												

Table 15: Commercial discretionary activity approvals in the regional park

Types of activity	2012		2013		2014		2015		2016		2017 (up to July)	
	Events	Estimated numbers on site	Events	Estimated numbers on site								
Air Activity	-	-	1	4	-	-	1	10	1	13	1	3
Filming/ Photography	25	2112	13	314	10	175	46	1703	36	1003	26	808
Research (inc. seed collection)	-	-	-	-	-	-	1	4	1	44	1	2
Sporting events (including clubs)	3	522	-	-	-	-	-	-	1	-	1	675

Activities that are classified as non-commercial continue to be the main type of discretionary activity in the regional park. Large group activities, educational research and sporting events are the activities which have involved the larger estimated numbers of visitors on site. Weddings also continue to be popular.

With the exception of 2013 and 2014, filming continues to be the largest commercial activity in the regional park. The tables above do not reflect the larger proportion of filming which occurs within local parks and reserves where there was a total of 106 permits issued between January and December 2017. Filming activities include commercials, films and television series.

Concessionaires and other agreements

An individual, group or organisation may apply to council for a concession to undertake a discretionary activity on an ongoing basis for a fee, for example, tourism operators who run guided walks. These concessions go through an assessment before being granted and are often subject to conditions that the concessionaires need to comply with. There has been

an increase in registered concessionaires from 54 in 2013 to 102 in 2017. Ninety-two of the existing concessionaires are for outdoor related activities with seventy being for sight-seeing or nature and wilderness tours. Adventure and education for schools, canyoning, abseiling, kayaking and other water-based activities such as surfing makes up the remainder. Ten of the 102 concessionaires are for other activities such as food and beverage, private education and commercial bee keepers.

Licenses and leases are both formal agreements with council for the exclusive use of part of a park or a facility on the park for a fee. Within the regional park there are currently 24 licences; grazing (4), surf club (1), pedestrian walkway (1), bach (1), museum (1), camp (2), hut (2), telecommunication utilities (9), golf club (1) commercial (1) and wastewater disposal field (1). There is also one lease (Watercare), three management agreements (Forest and Bird – Ark in the Park, DoC - Whatipu Scientific Reserve and Lake Wainamu QE II Trust), one Memorandum of Understanding and one sponsorship agreement. These figures have remained relatively constant when compared to the 2013 Monitoring Report where there were 20 licences, three leases, one management agreement, one memorandum of understanding and one sponsorship agreement.

4.4.9 Visits to other attractions or events

There is still limited information available on the number of visitors to other attractions within the heritage area. There are several markets, including the Oratia Farmers Market, the Titirangi Village Market, and the Piha Labour Day Market. Other attractions include galleries and art studios (The Art Post Studio in Parau, West Coast Gallery at Piha, Te Uru Waitākere Contemporary Gallery and the Upstairs Gallery in Titirangi), heritage buildings such as Lopdell House, Rose Hellaby House, Colin McCahon Cottage, the Huia Settlers Museum, and private businesses (Crystal Mountain and the Kiwi Valley Farm Park).

Waitākere Local Board endorsed an events policy in 2013 which covers local, regional and major events. Events and festivals which attract visitors to the heritage area include Music in Parks (Armour Bay Reserve, 25 February 2017), the Titirangi Festival of Music, Going West Readers and Writers Festival (Titirangi) and the Karekare Horse Races. In addition, there are other sporting events such as the Speights West Coaster at Te Henga / Bethells Beach (9 December 2017), the Trail Bush Karekare (12 November 2017) and The Hillary Trail Run/Walk. The Hillary Trail Run/Walk has been held annually since 2014 but the next event scheduled for 24 February 2018 was cancelled due to the organiser's decision to respect the rāhui. A list of the recorded events in local parks and reserves between 2014 and 2018 can be found in Appendix 11. This list does not include all events as generally permits are not required for small scale events.



Image on left: West Coast Gallery, Piha. Image on right: Hillary Trail sign.



Titirangi Village Market (held every last Sunday of the month).

4.5 Visitor satisfaction

Visitor satisfaction with their experience is monitored annually at Cascades-Kauri, Cornwallis and Piha (Glen Esk), and approximately every three years for the remaining locations within the regional park. This monitoring consists of intercept surveys at the following locations:

- Piha (Glen Esk)
- Cascade-Kauri
- Arataki
- Karekare
- Kakamatua
- Karamatura
- Lake Wainamu
- Cornwallis
- Whatipu.

The 2013 to 2014 results showed that over 95 per cent of respondents were either ‘very satisfied’ or ‘satisfied’ with their visit. However, visitors did suggest improvements to make their experience better. These included:

- increase number of bins and collection of rubbish (especially during summer)
- increase and improve toilets
- provide more parking and secure parking
- improve tracks
- improve signage – both directional and educational
- do not actively advertise as already too many people.

In 2017, a report undertaken by the council on visitor satisfaction with Auckland’s regional parks showed that 98 per cent of the 721 respondents surveyed thought that regional parks were important or very important to the Auckland region¹⁹ and that regional parks were important or very important in contributing to the conservation of the environment. The individual results for the areas included in the survey within the regional park (Glen Esk, Cornwallis and Cascades-Kauri) were consistent with the overall regional survey results.

Currently, there are no visitor satisfaction or demographic surveys undertaken on the use of the local parks and reserves within the heritage area. However an annual survey of residents is undertaken as part of the performance measures used to assess the level of service of the Waitākere Ranges Local Board agreements. The survey is conducted using a mix of online, phone and face to face interviews with respondents being Auckland residents aged 15 or over. The performance measures include the percentage of residents satisfied with the provision of local parks and the percentage of residents who visited a local park or reserve in the last 12 months. In 2015/16 this was 68 per cent (with a sample size of 183) and 89 per cent (with a sample size of 217) respectively with the Annual Plan targets going forward in 2017/2018 set at 75 per cent and 90 per cent.

4.6 Other data sources

Auckland Tourism, Events and Economic Development

ATEED, a council-controlled organisation, is the Auckland region’s economic growth agency. ATEED works with various partners to deliver multiple objectives, from growing Auckland’s innovation culture and key sectors, such as film and tourism, to attracting foreign investment, international events and visitors from around the world.

In its six-monthly report, dated 14 September 2017, to the Waitākere Ranges Local Board ATEED states that the visitor economy in Auckland continues to boom. The report also

¹⁹ Auckland Council Regional Parks 2016/2017 KPI Research Results, Captivate, February 2017.

states that the tourism spend for the year-ending May 2017 was \$7.7 billion, up 3.9 per cent on the previous year. International spend during the month of May grew by 15 per cent. Holiday visitor arrivals were up 12.9 per cent compared to the previous 12 months, and May holiday visitor numbers were up 6.8 per cent compared to May 2016.

ATEED commissioned research through Qrious, a Spark venture data analytics firm, on the numbers and origin of visitors to the heritage area between February 2015 and March 2017. The data was collected by using information from mobile phones when these devices were connected to the network for a call, text or data transmission. The data collection was anonymous, aggregated and did not include personal information such as phone number, address, gender or age. SIM cards that were identified by Qrious as being residents and visits with less than 30 minutes of duration were excluded. Domestic visitors are those visitors identified with a NZ SIM card whereas international visitors are those with an international SIM card. The research results showed the following:

- the majority of visitors to the heritage area come from within the Auckland region. The Waitākere Ranges, Henderson-Massey, Whau and Albert Eden local board areas combined account for 34 per cent of all local visitors
- visits to the area is highest during the summer peak season with visitor arrivals peaking at 141,000 in January 2017, up 8 per cent on the previous year
- despite seasonal variations, the trend showed a steady increase of visitor arrivals over the past two years with a compound monthly growth rate of 0.68 per cent overall (1.65 per cent, international 0.62 per cent domestic and 0.39 per cent Aucklanders)
- the majority of visitors are day trippers – around 80 per cent compared to 20 per cent who visit on an overnight trip
- more than half of overnight visitors from Auckland stayed for one night with seasonal patterns being less pronounced
- a larger proportion of domestic visitors stayed for one night or more with longer stays evident during the December/January holiday periods
- a large proportion of international visitors also stayed for one night
- the days with the most Auckland visitors to the heritage area are around Auckland Anniversary and Waitangi weekends. The peak occurred on 6 February 2017 with 14,000 visitors
- the weeks with the most visitors are around Christmas time and the other public holidays of Auckland Anniversary and Waitangi Day
- popular tourist destinations of Piha and Karekare show significantly larger numbers of international visits compared to domestic visits, primarily in the summer peak season.
- the differences between the number of international and domestic visits to Whatipu and Huia or Cornwallis were less pronounced than at the popular tourist destinations.

The data is only collected from those mobile devices which are connected to the network. The trends are comparable to the data captured by the Regional Parks Department, the Surf Lifesaving Club observations, and the traffic data in that it shows:

- there is an upwards trend in the number of visitors to the heritage area.

- Piha and Karekare are popular destinations for visitors
- the visitor numbers increased during the summer season with noticeable peaks around Christmas time, Auckland Anniversary and Waitangi Day weekends.

4.7 Infrastructure development

Regional Park

Tracks in the regional park are managed and maintained to target standards on an ongoing programme budgeted annually. This includes routine clearance of encroaching vegetation and repairs to track surfaces. Since 2013 significant works were carried out on the following tracks:

- Hamilton Track
- Muir Track
- Swanson pipeline surface renewal.

Other works include the replacement of a toilet at Pararaha and the Zigzag Track Bridge, and interpretation signs at the Piha RDF Radar Station site and the Arataki Visitor Centre. In addition in 2014 the council purchased an additional 78 kilometres of land, between the southern end of Piha Beach and Te Ahuaha Road, known as Taitomo. A Taitomo Draft Policy and Concept Plan had a public consultation process in July 2017.

Local parks and reserves

Ongoing renewals and maintenance of local park infrastructure (such as upgrades to tracks, playgrounds, signage and provision of new infrastructure) is provided for through the Local Board Local Parks Capex Programme.

Works occurring during the period from 2013 to 2017 included a mix of renewals and upgrades to existing tracks, signage, toilets and car parks. Larger projects include:

- the new toilets and shower block at the Piha Domain in 2014
- sections of the Little Muddy Creek walkway project (the Landing Road walkway (linking Tangiwai Reserve and Grendon Road)) in 2013
- a walkway between Rimutaka Place and Huia Road in 2017
- construction is underway in 2018 for the provision of a long-term solution to mitigate erosion along the coastline of Huia Domain
- sections of the Waitākere Ranges Foothills Walkway (Perris Road and Seibel Road to Coulter Road) began in 2017. The Seibel Reserve sections has been completed. The Perris Road section has been surveyed, fenced and entrances constructed, with the track still to be completed.

4.8 Visitor impacts and their management

Visitors coming to the heritage area for their recreation and relaxation needs can have impacts on other heritage features such as wilderness experiences, the quietness and darkness of the regional park and the coastal areas, and on the needs of the local communities. The council has strategies and plans which aim to reduce the impact of visitors.

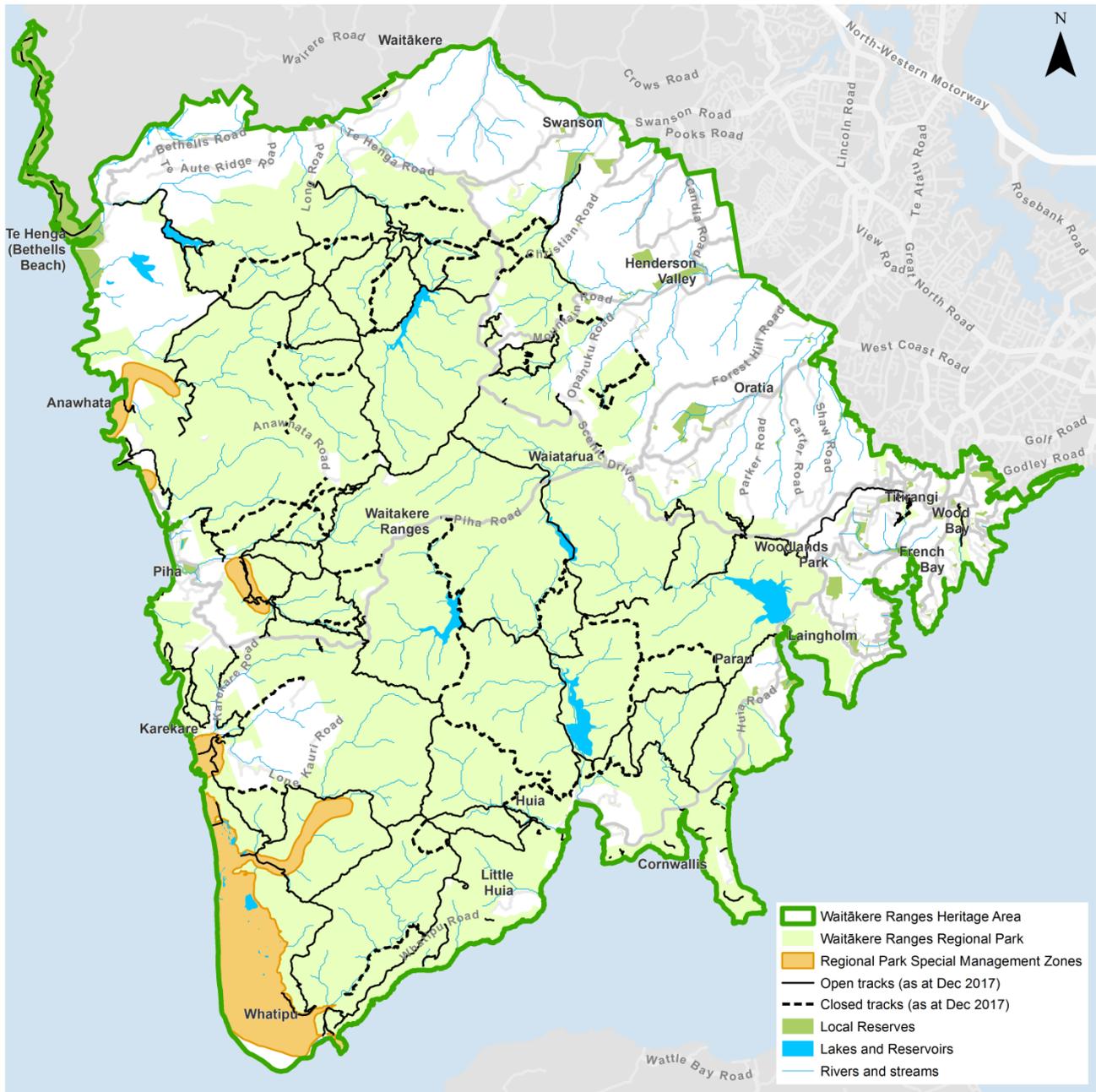
4.8.1 Overall management approach

The following plans seek to manage visitor impacts within the heritage area:

- Auckland Unitary Plan – through the use of the Public Open Space zones, Waitākere Ranges Overlay and the designation of the regional park.
- Local Reserve Management Plans – reserve management plans set out objectives and policies around the protection, development, access and use of local parks and reserves by both the local and wider community which may have different recreational requirements. Existing reserve management plans include the following:
 - Waitākere Ward RMP (2010)
 - Manukau Harbour Foreshore RMP (2001)
 - Te Henga RMP (2002)
 - Piha Reserves RMP (1999) and the Piha Coastal Management Plan (2000)
 - Swanson RMP (2004).
- Regional Parks Management Plan 2010
 - The general objectives and policies and the Waitākere Ranges section provides the framework for, amongst other matters, managing visitors. The RPMP was developed within the framework of the Act and identifies 28 ‘special management zones’ (refer to Map 10). The special management zones include both high use areas or sensitive locations. The areas within these zones offer a unique and special remote wilderness experience for visitors, often containing significant forest ecosystems and high natural, scenic and historic values. Many of these areas are relatively accessible and are becoming increasingly popular to casual visitors.
 - The objectives, and corresponding actions, for each special management zone ensure that visitor activity, and the level and type of infrastructure, is controlled so that the ‘special character of these locations is not threatened’.²⁰ This includes a cap on the number of organised sports events per year involving 50 or more participants ‘in some locations where sensitive environments or the experiences of casual visitors are to be protected’ (i.e. Anawhata, Karekare, North Piha, Pararaha Valley, Wai o Kahu (Piha Valley) and Whatipu)).
 - The RPMP is required to be reviewed in 2020 by Section 20 of the Act.

²⁰ Regional Parks Management Plan 2010, page 388

Map 10: RPMP Special Management Zones as at 7 December 2017 (note: that these are named Activity Management Zones in legend)



4.8.2 Actual and potential visitor impacts

Visitors to the heritage area, and the infrastructure to cater for these visitors, can have adverse impacts on indigenous ecosystems, landscape qualities and natural scenic beauty in a number of ways. Data shows that there has been increasing numbers of visitors to the heritage area over the last five years. Visitor use is increasingly influenced by social media. Impacts from visitor use include the potential spread of kauri dieback disease (particularly from off-track activities), unmanaged activities, weed seed spread, fires, off-leash dogs, infrastructure and freedom camping.

Spread of kauri dieback

The kauri dieback survey in 2008 indicated that visitors to the park were part of the reason for the spread of kauri dieback. Along with the closure of approximately 27 kilometres of tracks, phytosanitary stations were installed between 2008 and 2011 at a number of open tracks within the regional park. However, a follow-up report²¹ records that while the majority of visitors are aware of the issue and understand the importance of cleaning footwear, the average compliance with cleaning procedures is low. A more detailed discussion of this issue can be found in the Indigenous terrestrial and aquatic ecosystems topic.

The Kauri Dieback 2017 report concluded that the highest risk vector for the spread of kauri dieback into new locations is through soil disturbance associated with human activity, including visitor tracks and informal routes. Current results from monitoring of activity along the closed tracks within the kauri protection zones used in the 2017 report is showing that while visitor numbers have been reduced in some instances, overall the usage remains high. Observations of off-track activity were also recorded in four zones (Zone B – Chateau Mosquito Track, Zone G – La Trobe Track, Zone H – Nugget Track and Zone J – Nihotupu Ridge Track).

Social media

Social media (Google, Facebook, Instagram etc.) is increasingly used by visitors to search for information on locations to visit and to communicate meeting points or locations for both informal gatherings and organised groups. This makes it harder to predict which areas will become popular and to plan where infrastructure may be required to be built or upgraded.

Social media has resulted in greater exposure of the heritage area. While social media can be used positively to highlight and inform users of environmental issues it can also lead to issues of crowding in already popular locations. There is also the potential for an increase in visitors seeking out wilderness areas or other destinations (such as local parks and reserves) that historically had very low visitor numbers, or to undertake an activity (including off-track), because it is shown in a social media post.

Off-track and unmanaged activities

Off-track and unmanaged activities can pose a threat to personal safety as well as the potential spread of kauri dieback disease. Park rangers have observed that these types of activities are occurring within the heritage area. These activities include, but are not limited to, abseiling, canyoning (other than that allowed by a concession), hunting, unpermitted casual group events (with over the allowed limit of 50 people) and

²¹ Kauri Dieback Report 2017, Auckland Council, June 2017

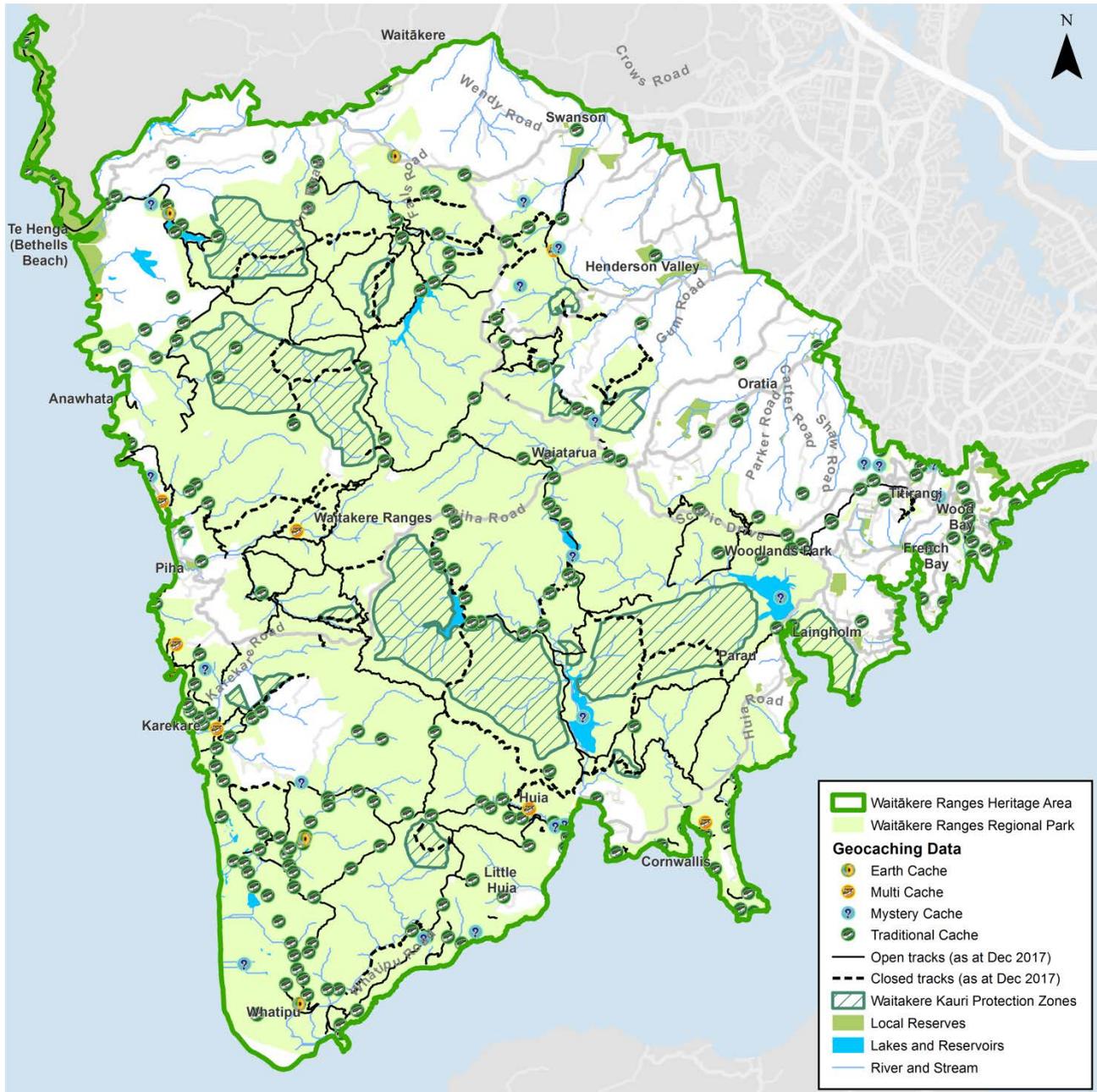
geocaching²². Similar observations of off-track activity were made during the kauri dieback surveillance process. The Kauri Dieback Report 2017, on page 20, discusses off-track activities and specifically 'the increasing popularity of geocaching' and that a number of geocaches were found off-track within the regional park.

Map 11 below shows the number of geocaches located within the heritage area, as at 30 November 2017, using data from one of the popular geocaching websites (www.geocaching.com). The majority of these geocaches are located within the vicinity of open tracks. However, there are some geocaches hidden up streams and near to closed tracks, such as at Karekare, Anawhata, Pararaha Valley and off the Pararaha Valley track. Because of the rāhui, and further track closures by council, in December 2017, the number of geocaches on closed tracks has increased. In response, some owners of those geocaches have now disabled the electronic logs (making them unavailable online) in respect of the rāhui. Whilst geocaches are difficult to monitor or regulate, the council could register with the website which would enable identification of existing geocaches, notification of new geocaches and communication with the owners of the geocaches.

Another potential risk with people walking up the streams, along with that of the spread of kauri dieback disease, is habitat disturbance of the Hochstetters Frog. These frogs tend to hide under rocks and logs in wet habitats alongside shaded streams. The Hochstetters Frog is classified as 'at risk' and the Waitākere Ranges is a known habitat with frogs detected in many streams, including within the Karekare and Pararaha Valley stream catchments.

²² World-wide outdoor treasure hunting game using Global Positioning System (GPS) devices to find a geocache (hidden waterproof container holding a toy/trinket or traceable tag). Participants record their finds against an electronic log book.

Map 11: Geocache locations (as at 30 November 2017)



Spread of weed-seed

Visitors to the area can contribute to the spread of weed-seed on their shoes through the tracks. More detail of the management of pest plants and corresponding eradication and restoration programmes can be found in the Section 2: Indigenous terrestrial and aquatic ecosystems topic and Section 6: People and Communities topic.

Fires

The peak visitor season corresponds with the peak summer fire risk season. There is an increased potential for accidental fires within areas that contain large tracts of relatively flammable species, such as mānuka-kānuka, gorse or pampas. Management is through

the imposition of a 'fire season' between 1 December and 30 April where it is illegal to light a fire in the open air without a council permit. Information signs show the level of fire risk and are placed at strategic locations i.e. at the eastern end of Piha Road. The RPMP has objectives prohibiting cigarette smoking and fireworks (unless part of an approved managed display) in regional parks. The council also has a smoke free policy²³ which applies to assets and facilities owned by council such as parks, reserves and playgrounds and outdoor public spaces including beaches.

Visitors walking dogs off-leash

Visitors walking dogs off leash can be an issue within sensitive wildlife areas especially during bird breeding seasons. The council's 'Policy on Dogs 2012' and the 'Dog Management Bylaw 2012' balances provision for owners to take their dogs into public places while adopting measures to minimise problems caused by dogs. Schedule 2 of the Dog Management Bylaw 2012 includes a list of areas where walking dogs is prohibited, allowed under control off a leash or allowed under control on a leash. Examples of each of these areas are listed below:

- prohibited areas - Te Henga Recreation Reserve and Whatipu Scientific Reserve
- under control off a leash - Foster Bay, South Titirangi and Laingholm
- under control on a leash - Piha South Road Reserve, on all park areas adjacent to North Piha between Monkey Rock and the access track at Little Lion Rock Corner.



Image on left and in middle: information signs at Piha and Te Henga/Bethells. **Image on right:** informal leave no rubbish sign at Te Henga/Bethells.

Infrastructure built for visitors

The infrastructure built for visitors such as carparks, toilets, signage, boat ramps, tracks and fences can detract from the natural and scenic qualities of the heritage area. In addition, there can be issues with overcrowded carparks, litter, graffiti, and behaviour of

²³ Auckland Council. Smokefree Policy 2017-2025

visitors during large events or at popular spots. Management tools in place to minimise these impacts include:

- Regional Park Designation (418) –The conditions set out the nature of the permitted works in respect of the development and maintenance of park infrastructure, such as tracks, buildings, structures, utilities, car parking, roads and vegetation management. All works are required to be undertaken in accordance with the RPMP
- the RPMP contains principles relating to the location and design (form, scale, colours, textures and reflectivity) of infrastructure so it does not dominate the landscape, signage, preparation of concept plans, including landscape assessments, clustering of structures and removal of redundant structures
- Auckland Design Manual – Parks hub section sets out the best practice design guidance that should be applied within parks and open spaces
- provision of rubbish and recycling bins in local parks and a well-publicised policy of ‘pack in – pack out’ for rubbish and recycling in the regional park
- public awareness of potential impacts and actions to protect and safeguard threatened species is promoted through events, education programmes, interpretive material, and codes of conduct/agreements and accreditation for concessionaires
- Auckland Transport Code of Practice for design of roads
- Auckland Transport – Draft Waitākere Ranges Heritage Area design guidelines (yet to be adopted and incorporated into AT’s code of practice)
- Auckland Council requirements for events, in conjunction with Auckland Transport, for temporary traffic management and road closures
- Piha Area Design Guidelines for asset development on Auckland Council regional park land (September 2010)
- Draft Waitākere Ranges Heritage Area design guidelines for local parks (currently out for consultation as at 12 February 2018).



Image on left: Carpark at southern end of Piha. **Image on right:** Glen Esk overflow car parking sign, Piha.

Freedom camping

Freedom camping in the heritage area is still controlled through the legacy Waitākere City Council Public Places Bylaw 2010. This bylaw places restriction on the use of public places and freedom camping is not permitted other than at bookable sites available for that purpose. Bookable sites include the Huia Barn Paddock, Arataki, Craw Campground (Anawhata), Cascade-Kauri, Glen Esk Road, Log Race Road and Cornwallis parking areas for self-contained campervans, and the Whatipu Lodge campground.

Complaints are received by council from residents about the issues associated with freedom campers such as noise, rubbish, inappropriate behaviour and use of bushes and dunes as toilets. Prior to Christmas 2016, the Waitākere Ranges Local Board, some local residents and the council's enforcement and Parks teams put strategies into place at Piha to educate freedom campers. These strategies included regular visits to the area by the summer ranger, handing out information pamphlets and the placement of 'no camping' signs. An update to the local board on the portfolio in March 2017²⁴ notes that the strategies seem to have been effective. Whilst some freedom campers had relocated to other places in Piha, they were scattered more widely and did not seem to create the same nuisance.

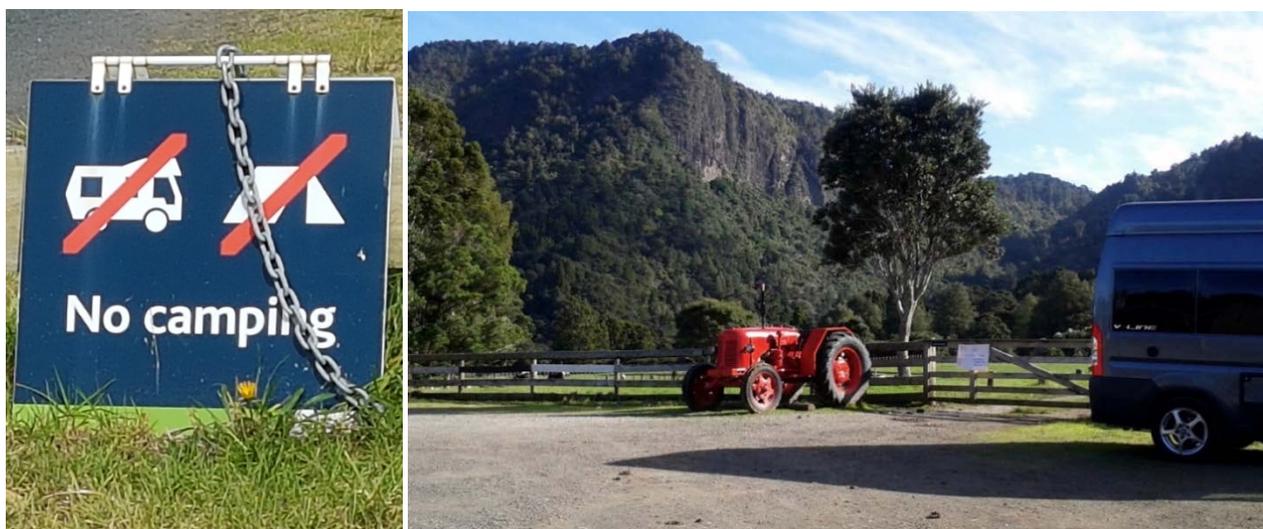


Image on left: No overnight camping sign at mid beach on Marine Parade North, Piha. **Image on right:** Barn Paddock Campground, Huia allows overnight parking for self-contained campervans.

4.9 Public feedback

Feedback on this topic received from members of the public at the meeting held on 15 June 2017 largely reflects the discussion above on the management of, and potential for, visitor impacts on the heritage area. Comments included the following:

²⁴ Historic Heritage/Character and Parks Portfolio Update Report, Waitākere Ranges Local Board, 23 March 2017.

- concern about spread of kauri dieback through human activity and closure of more tracks in infected areas required until these tracks are upgraded
- current track monitoring methodology - how the data is captured and analysed
- dog control and enforcement of owners not following the bylaw rules
- more tracks for mountain-biking requested
- enforcement for mountain bikers using tracks other than where it is permitted (Beveridge Track)
- overcrowded carparks – are “park and rides” required or should there be a limit?
- monitoring of, and engagement with, unofficial large groups of walkers is required.

4.10 Visitor related businesses in the heritage area

The Act requires the provision of social, economic, environmental and cultural well-being for those people who live and work in the heritage area. Along with local residents, visitors help support the economic wellbeing of local communities.

The Waitākere Ranges Local Board undertook a stocktake of businesses within the heritage area with the results contained in a report dated September 2014²⁵. The objective of the stocktake was to get up-to-date data on the nature, location and number of businesses, understand the importance of home-based businesses, develop potential strategies for assistance and to support sustainable local economic development. Section 5.13 of that report states, that whilst the database is not an exhaustive list of all businesses, it provides a useful baseline to monitor changes and identify issues in local business activity.

The report provides data on 18 types of business activities within each of the surveyed locations. Further information on the stocktake including a map which shows the locations and types of business activities (refer to Map 15: Business Stocktake) can be found in Section 6: People and Communities topic. The businesses also serve the local communities with the following four business activities having the potential to also attract visitors:

- creative – artists, potters, book binders, photographers, art galleries, jewellers, film producers, sculptors, face painters, make-up artists, fashion designers, glass blowers and wood carvers
- cafes, restaurants, bakeries and takeaways
- sports and recreation – surf instructors, tour guides, horse treks, farm-based adventure parks, paintball, martial arts, garden tours, fancy dress equipment
- accommodation – bed and breakfasts, lodges, camping grounds and camps.

Table 16 below sets out the total numbers of the above business activities by area and sector.

²⁵ Waitākere Ranges Heritage Area Business Stocktake, Auckland Council, September 2014

Table 16: Total numbers of businesses by area and sector

Area	Accommodation	Creative	Sports and Recreation	Cafes, restaurants and takeaways	Total
Titirangi	10	21	12	18	61
Piha/Karekare	24	7	7	3	41
Henderson Valley/ Swanson / Waitākere	8	15	14	1	38
Oratia	4	12	7	2	25
Te Henga / Bethells	7	2	1	0	10
Laingholm/Parau/Waima/ Woodlands Park	2	6	4	1	13
Huia/Cornwallis/Whatipu	4	3	1	0	8
Waiatarua	2	6	0	2	10
TOTAL	61	72	46	27	206

The results show there is a mix of business activity clustered at Titirangi, Henderson Valley, Swanson and Waitākere. Piha and Karekare have the highest number of businesses which provide accommodation.

The 2013 Monitoring Report noted that businesses catering to visitors in the heritage area are mainly in Titirangi and the adjacent Otimai and Opanaku catchments, with another grouping in Piha. The 2014 stocktake supports this.

4.11 Suggestions for the future (2018 to 2023)

To address the matters discussed above, and for the purposes of reporting in the State of the Waitākere Ranges Heritage Area 2023 report, the following actions are suggested:

- that a review of the concessionaires and discretionary activities be undertaken to determine whether a capped limit is needed
- that a follow-up on the Waitākere Ranges Heritage Area Business Stocktake report be undertaken by 2022
- that a stocktake be undertaken on visitor information data from all council sources (i.e. ATEED, Regional Parks, Waitākere Ranges Local Board, Annual Plan etc.), including

visitor demographics, visitor satisfaction and use of both the regional park and the local parks/reserves. The purpose of the stocktake is to achieve a more comprehensive and co-ordinated understanding of the recreational use of the heritage area by:

- identifying who is involved in monitoring and collecting visitor information
 - identifying the type of information available
 - identifying any duplication or gaps
 - providing a database that can be used by council and CCOs
- that a co-ordinated approach be taken across council departments and CCOs for monitoring and data collection of visitor related information (including visitor counts, demographics, satisfaction and use of both the regional park and the local parks/reserves) to enable robust comparisons to be made in 2023 report. In order for comparisons to be made data will need to be collected at the same locations over the same time periods
 - that geocache sites are monitored and geocache participants contacted where required; either to provide education on where to place geocaches or to request removals where geocaches are in sensitive locations
 - that the current management and monitoring of the effects visitor use on track and off-track activities (including use of closed tracks and non-permitted activities) be evaluated. The purpose of the evaluation would be to determine whether additional measures are required to manage and monitor usage, such as the reinstatement of track counters or whether the provision of additional infrastructure or resources is required.
 - that council and CCOs undertake a coordinated approach with tourism agencies and businesses which promote the heritage area as a place to visit to ensure that consistent messages are given, such as those about kauri dieback and the reasons for track closures and phytostations.

4.12 Funding implications of activities

The funding for activities associated with managing the heritage area comes from a number of council departments including Biodiversity and Biosecurity, Regional Parks, Plans and Places, the local board, and CCOs.

Funding for infrastructure and maintenance within the regional park is from departmental operational budget which is allocated regionally rather than being based on its location within the heritage area.

5 Topic: Development and consent activity

5.1 What is included in this topic

This section identifies the consent activity and extent of development in the heritage area from 2012 through to June 2017 and compares this to the 2008-2012 period of activity where possible. It provides a broad comparison of planning and building consents over these periods in respect to the following areas:

- physical changes from consents (buildings, land use, vegetation removal)
- extent and location of subdivision
- comparison of some of these matters with areas outside of the heritage area.

Monitoring sources

Information for this topic has been primarily obtained from the planning and building consent teams in Auckland Council. This information relates to the scope and scale of development as captured by the administration of the Operative Waitākere Section (2003) of the Auckland Council District Plan (April 2012 - September 2016) and the Auckland Unitary Plan (October 2016 - June 2017). Building consent information has also been used as this information provides increased reliability about the actual implementation of any activity or works that has resource consent. Some information has also been obtained from analysis of aerial photography, the latest being 2016 Lidar aerials.

5.2 Key findings

Relevant heritage features (section 7 of the Act): 2(h), (i)

Summary – development and consent activity

- The number of subdivisions creating new lots and land use consents have declined between 2012 and 2017.
- Tree and vegetation consent applications have declined by nearly half between 2012 and 2017.
- Ridgeline rule infringement consents have declined by more than half between 2012 and 2017.
- The Auckland Unitary Plan has applied a planning framework to the heritage area that seeks to achieve the same or similar resource management outcomes to those achieved in the former Auckland Council District Plan – Operative Waitākere Section 2003 (Waitākere City District Plan).

Progress made towards achieving the objectives:

- From April 2000 to June 2017 the number of subdivision and development resource consents have decreased. This has contributed to achieving the objectives to retain:
 - the natural landforms and landscapes which give the area its distinctive character
 - the dominance of natural and rural landscape elements reflected in coastal villages, low-density residential and urban areas in forest settings and the rural character of the foothills.
- There is currently insufficient data and information about vegetation coverage to determine if the state of the environment has changed since the 2013 Monitoring Report.

5.3 What we measure changes against

A range of indicators were used to assess development pressures, responses to those pressures through the consents process and physical changes occurring as a result of development.

The development and consent decision indicators are:

- number of subdivision, land use and building consent applications
- number of fee simple subdivision consents applied for and granted and the number of new dwellings applied for
- approval rate for land use consents
- number of land use consents for new buildings, extensions and ancillary buildings, and vegetation removal or modification that have been granted and implemented
- land use consents granted for development on sensitive ridgelines
- future development potential index (potential for new subdivision and the number of existing vacant lots). These were derived from analysis of the Waitākere City District Plan zoning provisions and the zoning in the Auckland Unitary Plan (Operative in part 2017).

5.4 Changes between 2013 and 2018**5.4.1 Subdivision, land use and building consents**

The data in Table 17 below reflects all types of applications, from boundary adjustments and minor building works to more significant subdivision, residential development and vegetation removal. Since April 2000 the number of subdivisions, land use consents and building consents sought within the heritage area have continued to decrease.

Table 17: Subdivision, Land Use and Building Consent applications as an indicator of development pressures 2000-2012 and 2012-2017 (June)

Period	Subdivision consents granted (all types)	Land use consents granted (all types)	Building Consents (all types)
April 2000-March 2004	150	1643	No data available
April 2004-March 2008	167	1387	1703
April 2008- March 2012	70	1155	1209
April 2012- June 2017	36	530	270



Example of a replacement dwelling granted consent in 2016 at Piha. Previously a two storey dwelling existed on the site. Photo dated November 2017.

Subdivision

The creation of new fee simple lots and boundary adjustments are the most common forms of subdivision activity in the heritage area (refer to Map 12 below). From 2012 to 2017 there has been a reduction in the number of subdivision applications and the number of new lots created when compared to earlier time periods (refer to Table 18).

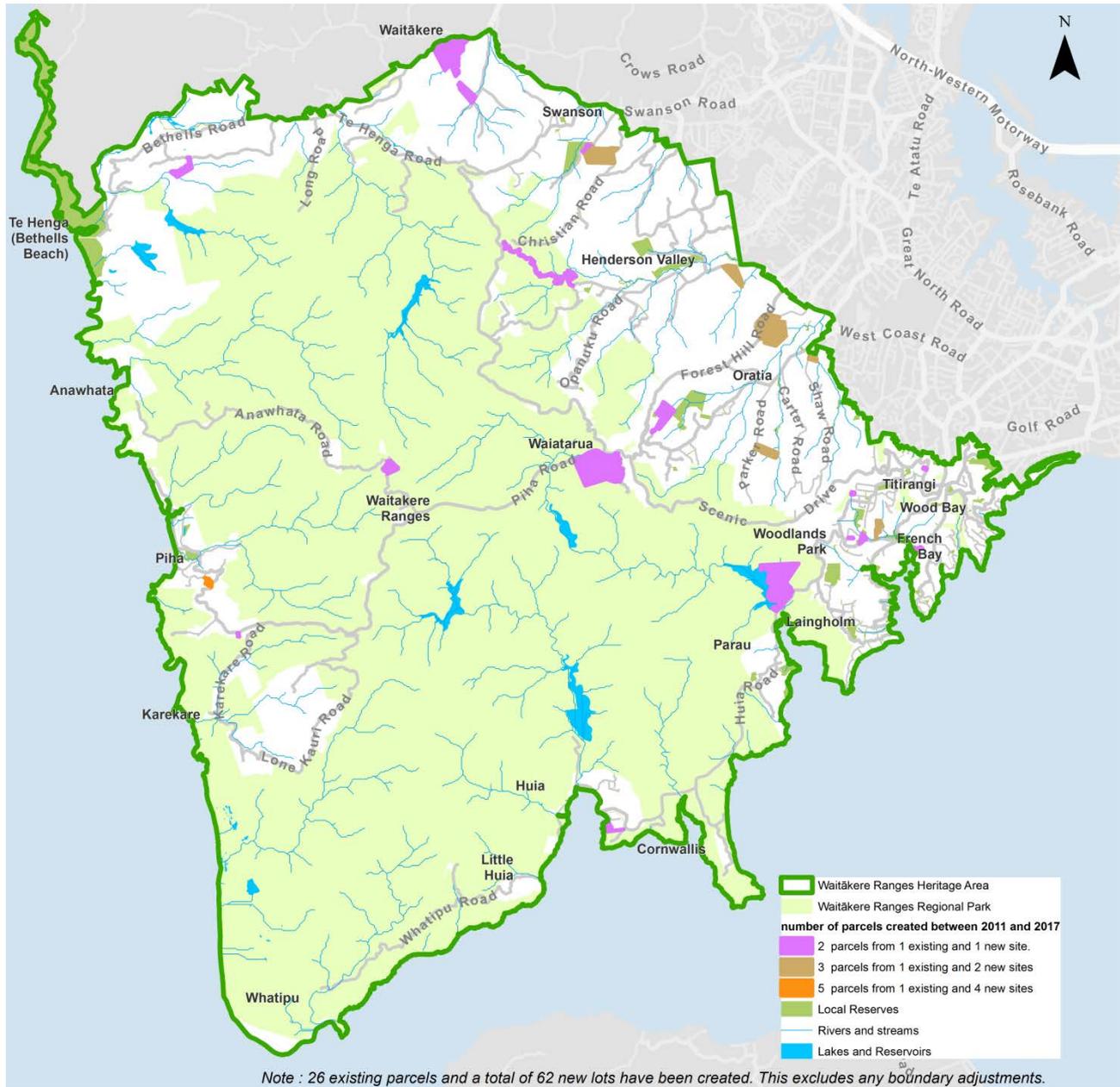
Table 18: Subdivision consent applications

Period	Applications for fee simple subdivision	Number of additional fee simple lots consented	Number of boundary adjustments
April 2004-March 2008	75	164	47
April 2008-March 2012	41	108	20
April 2012-June 2017	30	62	25



Example of a new subdivision and dwelling at Piha. Subdivision consents granted in 2015 and land use consents granted in 2016. Photo taken November 2017.

Map 12: Map of subdivision changes between April 2012-June 2017



Land use consents

The approval rate for land use consents has changed since the Act came into effect. There has been a decrease in the number of consents both applied for and granted (refer to Table 19). This indicates the rigor of the planning environment which supports the purpose of the Act and its objectives of promoting the protection and enhancement of the heritage area's heritage features for present and future generations.

Table 19: Decisions on Land Use consents

Land Use Consent	Granted	Declined	Lapsed, Withdrawn, Closed
April 2004-March 2008	1387	12	34
April 2008-March 2012	1155	0	173
April 2012-June 2017	540	1	295

Types of land use consents 2008-2017

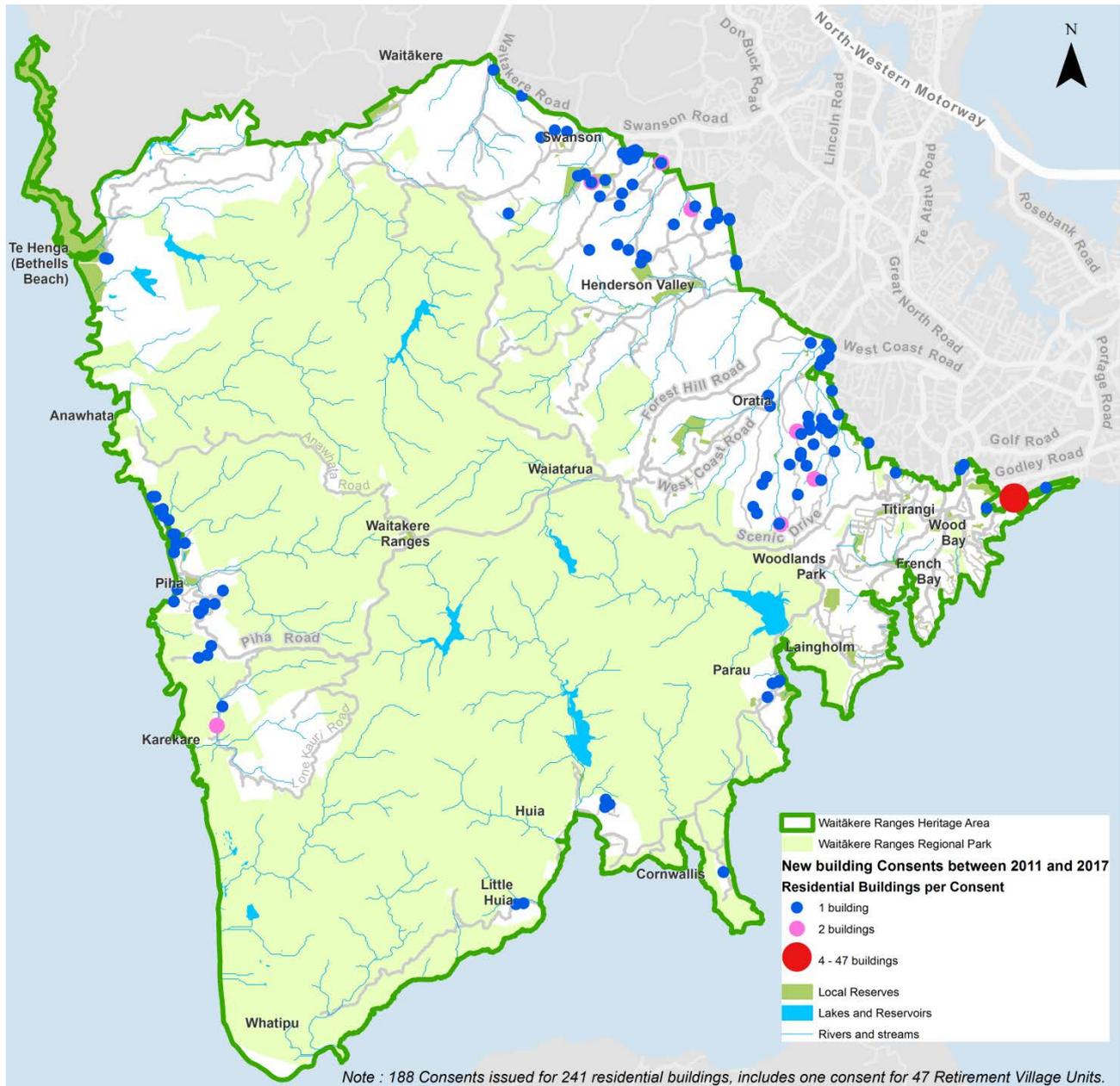
The land use consent data is further grouped below in Table 20 into the main types of consents sought. The land use consents are sorted into zoning categories that generally reflect the different landscape types. The distribution of new buildings (mainly new dwellings) is shown for each zone in Map 13 below.

The greatest number of new dwelling construction occurred in the Bush Living / Large Lot zoned urban areas of Titirangi, the coastal village of Piha and the foothills of Oratia.

Table 20: Types of consents granted by zone between April 2008-March 2012 and between April 2012-June 2017.

Land Use Zoning Type Waitākere Plan 2008- 2016/Auckland Unitary Plan 2017	New Buildings		Extensions to existing buildings/ancillary buildings		Tree removal		Total	
	2008-2012	2012-2017	2008-2012	2012-2017	2008-2012	2012-2017	2008-2012	2012-2017
Bush Living /Large Lot zone	69	39	135	111	295	147	499	297
Coastal Villages/Rural and Coastal Settlements zone	20	20	20	28	41	13	81	61
Foothills/ Waitākere Ranges and Foothills Zones	36	37	41	116	69	29	146	182
Total	125	96	196	255	405	189	726	540

Map 13: Dwellings consented



Note. Dwellings and other building works enable the clearance of vegetation for the building platform as part of those works, up to a maximum of 300m² per site.

5.4.2 Land use consents for activities on sensitive ridgelines 2008-2017

Between April 2008 and March 2012 there were 87 resource consents granted for activities on sensitive ridgelines (refer to Table 21 below). The majority of these were in the Bush Living / Large Lot landscapes or zones. These are a subset of all the resource consents granted.

Between April 2012 to June 2017 there were 37 resource consents granted for activities on sensitive ridgelines (refer to Table 21 below). This confirms a reduction in applications

that may give rise to the largest visual effects in the heritage area. This is separately analysed in Section 3: Natural landforms, landscape and the night sky topic. This supports the heritage area objective 8(g) in that the district plan provisions contribute to maintaining the quality and diversity of landscapes in the heritage area.

Table 21: Land use consents for activities on sensitive ridgelines 2008-2017

Land use consents by zone	April 2008-March 2012	April 2012-June 2017
Bush living/Large Lot zone	63	23
Coastal Village/Rural and Coastal Settlements zone	5	6
Foothills/Waitākere Ranges and Foothills zones	19	8
Total	87	37

5.4.3 Land use consents to clear vegetation 2008-2017

The resource consent data used for monitoring analysis below is indicative, as it is currently difficult to extract exact quantitative data. This is complicated by the planning provisions that have applied to the heritage area during this reporting period being in transition from the legacy Waitākere District Plan to the Auckland Unitary Plan Operative in Part. In addition, in respect of data relating to tree and vegetation clearance during this monitoring period, the amendment of section 76 of the Resource Management Act that removed district plan rules that protected categories of trees (for example native trees over a certain height/diameter) in urban areas (urban environment allotments), came into effect. In this context, while all attempts have been made to obtain accurate data the statistics below are used to indicate a trend, rather than representing total statistical accuracy.

Subject to the proviso above, data indicates that 405 resource consents to clear vegetation were granted between April 2008 and March 2012 (refer to Table 22 below). For applications involving indigenous vegetation removal, an estimated 34 per cent of these were for a single tree, and 47 per cent for four trees or less.

Between April 2012 and June 2017 there were 242 resource consents granted to clear vegetation (refer to Table 22 below). Of these 30 per cent of the applications involved resource consents to remove a single indigenous tree, and 25 per cent to remove indigenous trees (two-four). Most of the larger clearances involved exotic trees (particularly pines and eucalypts from wood lots). Vegetation clearance includes the felling of trees, trimming and works within the dripline of trees especially by service providers.

Table 22: Land use consents to clear vegetation 2008-2017 in urban, rural and open space zones within the heritage area

Vegetation clearance by number or area	Indigenous		Exotic		Indigenous and Exotic or not defined		Totals	
	2008-2012	2012-2017	2008-2012	2012-2017	2008-2012	2012-2017	2008-2012	2012-2017
Single Tree	83	76	61	38	2	1	146	115
2-4 Trees	26	63	28	21	5	7	59	41
5-15 Trees	6	18	14	4	3	6	23	28
15-50 Trees	3	1	2	4	2	0	7	5
More than 50 Trees	0	0	4	1	0	0	4	1
500-2000m2 cleared	2	0	0	2	0	0	2	2
More than 2000m2 cleared	1	0	0	0	0	0	1	0
Total	121	158	109	70	12	14	242	242
Note: Consents granted comprised of tree removals, trimming and works within the dripline of trees.								

The growth of Auckland has led to an increase in the overall consenting activity in the wider Auckland region. Data indicates that applications and granted resource consents in the heritage area to remove trees or clear vegetation have remained static. However, this data has been collected over a period of time in which there have been changes to the planning provisions that apply and RMA amendments relating to tree and vegetation clearance.

A more detailed analysis of vegetation change will be undertaken through the review of the 2016 Lidar data. Lidar stands for 'Light Detection and Ranging', and is a remote sensing method that uses light in the form of a pulsed laser to measure variable distances to the Earth. Lidar provides a high resolution data capture which allows software analysis of the of vegetation and urban foot print.

High resolution aerial imagery and Lidar data has recently been obtained for the heritage area, but analysis of this information was not available at the time of preparing this report.

5.4.4 Changes to vegetation cover and the urban footprint

Protecting, enhancing and restoring the dominance of natural and rural landscape elements over the built environment is an objective of the Act. This is linked to the identified heritage features of the Act. Section 7(2)(h) states that the eastern foothills act as a buffer and transition between metropolitan Auckland and the forested ranges and coast, and seeks the retention of rural character for the northern and eastern foothills.

Measurement of the density of the 'urban footprint' (i.e. the area covered by buildings and impervious surfaces) has been undertaken by the council for storm water management purposes. The estimated 2012 baseline for the heritage area in comparison with adjacent urban areas is shown in Table 23 below.

Table 23: Extent of urban footprint (buildings and impervious surfaces) in adjacent metropolitan administrative areas and the heritage area

Name of area	% of urban footprint coverage 2012
Henderson Massey urban area	38.1%
Waitākere Ranges urban area (east of the heritage area)	30.3%
Whau Local Board	44.8%
Heritage Area-Bush Living	6.4%
Heritage Area-Foothills	3.6%
Heritage Area-Parkland	0.1%

The rate of change in the urban footprint was able to be estimated in 2012 from aerial photographic analysis. Between April 2008 and April 2012 an estimated 2.2 hectares of new buildings and impervious surfaces were added to the urban footprint of the heritage area. This is a very small fraction of one per cent of the total land area of the heritage area. This data (derived from Lidar analysis) has not been updated at this time.

A new building footprint and impermeable surface layer is also being developed by council. Once this data is available it will also be used for measuring vegetation changes between 2018 and 2023.

5.5 Development capacity

The Auckland Unitary Plan zones provide a policy and rule framework that manages development in accordance with zones and environmental constraints. There are always uncertainties in doing a development capacity assessment due to the limitations that may restrict the ability of land to be subdivided e.g. natural hazards, landscape, access and infrastructure servicing issues. Also landowners may not wish to take up the full development opportunities provided by the zoning and thereby preclude the full achievement of development capacity for the land.

However this exercise has value in understanding the overall provision for development available for the heritage area and what levels of development may reasonably be expected to occur.

Table 24: Existing and potential vacant lot development capacity

	Existing vacant lots allowing a dwelling		New potential vacant lots allowing a dwelling		Total development capacity from existing and potential subdivision	
	Waitākere City District Plan	Auckland Unitary Plan	Waitākere City District Plan	Auckland Unitary Plan	Waitākere City District Plan	Auckland Unitary Plan
Bush Living zone in Waitākere City District Plan or Single House or Large Lot zones in Auckland Unitary Plan	575	300	386	301	961	601
Coastal Villages zone in Waitākere City District Plan or Rural and Coastal Settlements zone in	108	82	57	6	165	88

Auckland Unitary Plan						
Foothills zone in the Waitākere City District Plan or Waitākere Ranges and Waitākere Foothills zones in Auckland Unitary Plan	250	525	249	352	499	877

Notes:

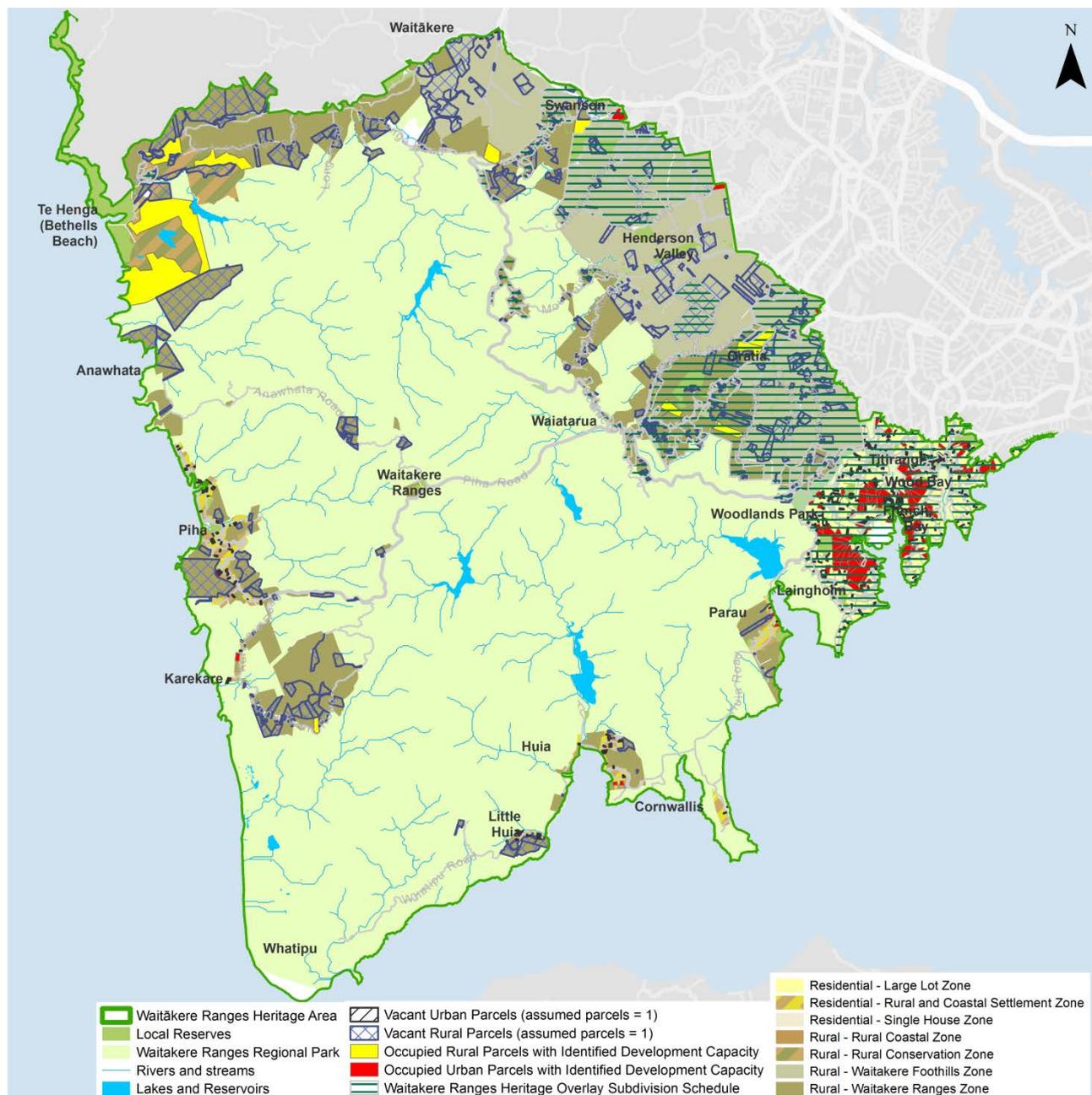
- The Bush Living and Coastal zones of the Waitākere City District Plan are generally equivalent to the Large Lot and the Rural and Coastal Settlement zones of the Auckland Unitary Plan.
- The Foothills zone of the Waitākere City District Plan generally equates to the Rural - Waitākere Ranges and Waitākere Foothills zones of the Auckland Unitary Plan. The main difference is that the activity status of subdivision beyond that allocated is subject to an Environment Court appeal. At the time of writing the matter is unresolved.
- The Rural - Waitākere Ranges and Waitākere Foothills zones are supported by an Overlay and Precincts that provide a defined level of subdivision capacity over and above the zones. These are accounted for in the above figures, and have been adjusted to deduct the subdivisions approved between 2012-2017.

Map 14 below shows:

- the spatial extent of where there are vacant sites that could have a dwelling erected on them
- developed sites where additional development/subdivision can occur or the Waitākere Ranges Heritage Overlay Subdivision Schedule applies. This overlay provides specific provision for additional subdivision.

Overall approximately 1566 potential sites in the heritage area are provided for as shown in Table 24 above.

Map 14: Subdivision and development capacity enabled by the Auckland Unitary Plan (as of February 2018)



5.6 Suggestions for the future (2018 to 2023)

- Ensure Lidar and high resolution aerial photography is available in time to enable analysis of the change for the next state of the environment report.
- While the number of resource consents has generally declined from 2012 to 2017, the planning framework has recently changed. Ongoing monitoring of subdivision and development under the Auckland Unitary Plan is required to determine if the same outcomes are being achieved in the next monitoring period.

5.7 Funding implications of activities

Funding will be required for the next Lidar and high resolution photography to be reflown.

6 Topic: People and communities

6.1 What is included in this topic

The heritage area is a unique area of public and private land. Its uniqueness is its proximity to the Auckland urban area and that there are over 20,000 people who live within it and carry on their lives there. In many respects the wellbeing of the residents of the heritage area is directly supported by their proximity to metropolitan Auckland. For many living in the foothills and bush living areas, employment, shopping, services and education are located outside the heritage area. This proximity makes access to a high level of services and facilities possible, without having many of these activities located in the heritage area. The connections between the heritage area and Auckland are therefore important to the wellbeing of those that live there.

This topic records the ongoing activities of people, community group projects and organisations who work throughout the heritage area. This includes community groups, place based initiatives (such as weed and pest control), service organisations and a myriad of other activities. It has been through the efforts and persistence of these individuals and groups that the heritage area has become what it is today.

6.2 Key findings

Relevant heritage features (section 7 of the Act): 2(j), (l)

Summary – people and communities in the heritage area

- The heritage area's resident population continues to grow at a rate substantially less than the rest of Auckland.
- The resident population is generally more highly qualified and has a higher proportion of people working in management and professional roles than the regional average.
- Census data over the 2012 to 2017 period confirms a trend of decline in the number of agriculture, forestry and fishing businesses in the area.
- Compared to the regional average of declining household ownership, property ownership within the heritage area remains high and stable at 83 per cent.
- Over 3360 hectares of public reserve and private land is under active community stewardship.
- There is marked stability in the function and activities of community groups in the heritage area between 2012 and 2017.
- Environmental groups in the heritage area have been subject to change between 2012 and 2017. The end of the Sustainable Neighbourhoods Programme saw many groups close down. However many of the original environmental restoration groups have continued their work and some new groups have established.
- Volunteer hours in the regional park have been gradually declining since 2012. The reasons for this decline require investigation so that the council can improve volunteer

recruitment and retention.

- The opportunity exists for improved coordination and support in respect to the standards and practices of volunteers and organisations' activities in the heritage area

Progress made towards achieving the objectives:

- The communities living within the heritage area continue to thrive and play an important stewardship role in the management of the heritage area. In particular this is through their advocacy and the volunteering of their time and labour, especially through volunteer services (for example fire, surf lifesaving, community facility support and services) weed and pest control, land management, restoration and protection, and supporting the vibrant artistic and cultural heritage of the heritage area.
- The passion and commitment of the numerous community groups in maintaining the features of the heritage area is fundamental to achieving the Act's objectives and helps develop strong community relationships.

6.3 Changes between 2013 and 2018

Census data can provide information on the demographic profile of the communities and certain aspects of community wellbeing. This data is strongly influenced by employment and access to services, factors which are not necessarily linked to the Act or the heritage area itself. In addition, such data does not capture the more qualitative aspects of wellbeing, such as the strength of community networks and the community's level of involvement in caring for the environment, which is a strong feature of the heritage area.

The following areas of comparison have been used indicate the changes that have taken place in the heritage area that are relevant to the objectives of the Act. These are:

- census information on community, economic and housing profiles
- Auckland-wide organisations, clubs, church groups and business organisations that contribute voluntary hours to environmental protection and restoration projects
- local community groups and local businesses
- service organisations that provide ongoing services in the heritage area
- local area plans: Promoting community-based decision-making and local responses to local needs. Local area plans are being progressively implemented through community activities and the Waitākere Ranges Local Board Plan.

6.3.1 Census changes between 2006 and 2013

Census information on community, economic and housing profiles collected in 2006 and 2013 for the heritage area is set out in Appendix 12.

In summary the census information for the 2006-2013 period highlighted the following trends for the heritage area:

- While the heritage area's population continued to grow this was at a slow rate relative to the rest of the Auckland region.

- The median household income of \$92,600 within the heritage area has increased markedly relative to the regional average income of \$65,000.
- The resident population is more highly qualified and a higher proportion of people work in management and professional roles than the regional average.
- The home ownership level of 83 per cent in the heritage area is stable and much higher than the regional average of 61 per cent.
- The census data confirms a trend of decline in the number of agriculture, forestry and fishing businesses in the area.

6.3.2 Business stocktake

In September 2014 an inventory of the businesses within the heritage area identified 939 businesses²⁶. Some of these businesses identified customers across the Auckland region and offshore, however most served customers in the local area.



Titirangi Village is the main commercial centre in the heritage area.

The stocktake was developed only from publicly available information only and is therefore not exhaustive. In 2016 the business demographic survey²⁷ data identified 2602 businesses with registered addresses in the heritage area. This would include a lot of individuals working as individual contractors but constituted as a business, and businesses registered in the heritage area operating in wider Auckland.

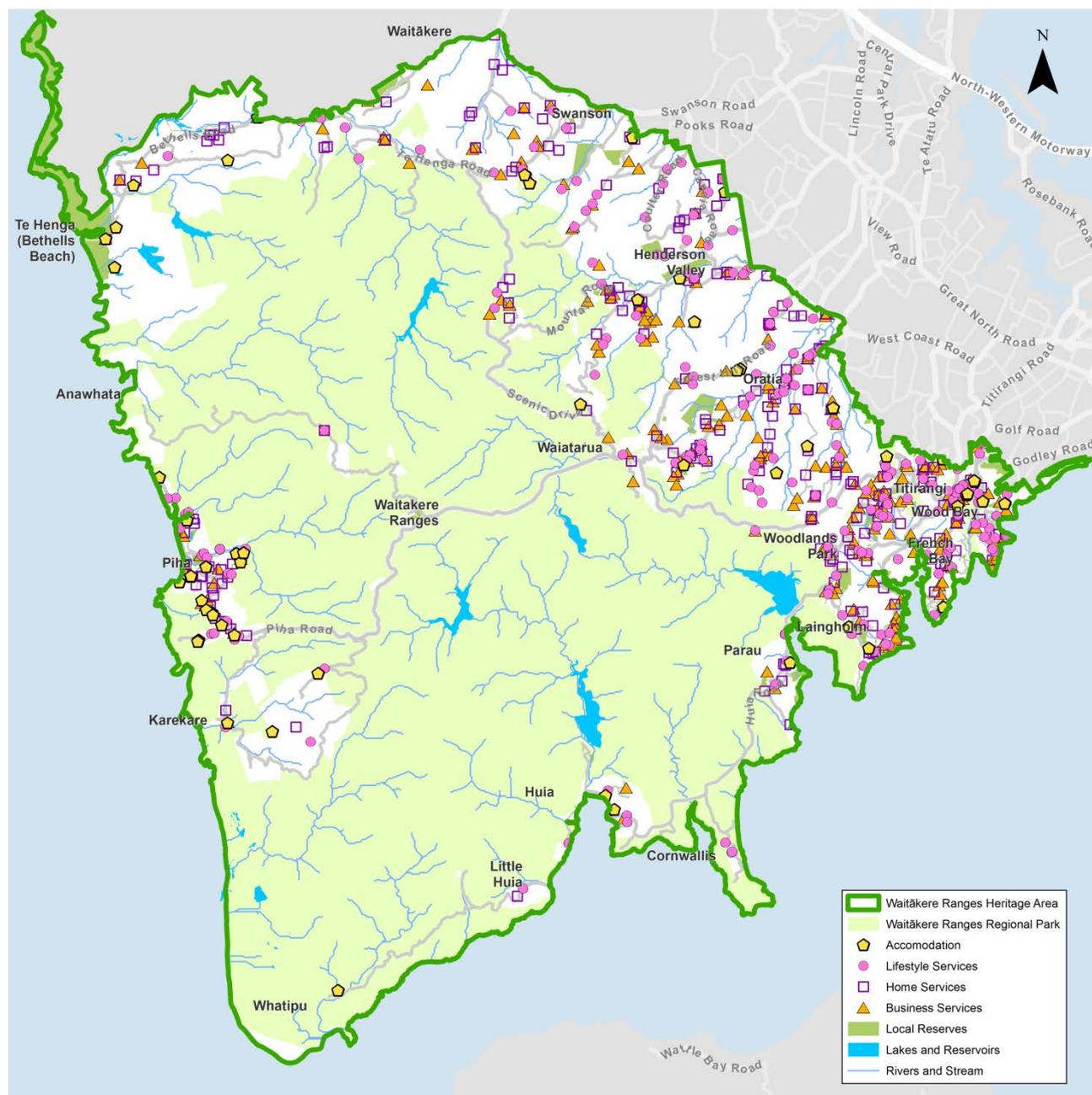
However the stocktake gives an analysis by name and type of businesses operating in the heritage area. There are 18 types of businesses identified, with a great proportion of these businesses having a web-based presence, especially in retail operations and information technology. Map 15 below outlines the distribution of these businesses which shows that

²⁶ Waitākere Ranges Heritage Area Business Stocktake – September 2014

²⁷ Department of Statistics, Business Demographics Survey, 2016.

they tend to locate on the main roads in the heritage area and at Titirangi and Piha. For the purposes of this map the 18 types of business activities have been simplified into four broad categories. Further information on the business stocktake is Section 4: Recreational use of the heritage area topic.

Map 15: Business stocktake September 2014



6.3.3 Local resident and ratepayer groups

In 2013 there were 17 resident and ratepayer associations and related organisations identified in the heritage area. In 2017 there were 19 residents and ratepayers groups.

This change saw the Swanson Residents and Ratepayers group disbanded and replaced by another group called Celebrating Swanson. Two new residents' groups were established, one in Oratia (Oratia Heritage Society) and one in Waima (Titirangi Protection Group). Both of these were formed to voice the concerns of local residents about the replacement and location of the Huia Water Treatment Plant.

6.3.4 Community stewardship

The heritage area has a strong history of hands-on environmental and community stewardship. This is reflected in the numerous groups and organisations that exist, both formally and informally, across the heritage area. These are augmented by the efforts and initiatives undertaken by individual volunteers, land owners and other organisations and groups.

Key groups with a hands-on stewardship role have been identified in the heritage area. These groups were in many cases identified in the 2013 report and have continued to play their part in local projects and programmes of work. Refer to Appendix 13.

The following key changes took place in the areas of environmental stewardship between 2012 and 2017:

- Community efforts towards Waitākere Ranges-wide coordination, information sharing and fund-raising ability for environmental projects
 - Waitākere Ranges Conservation Network: The Waitākere Ranges community conservation groups set up an informal network in 2014 to organise seminars, skill building workshops and networking events, and share conservation news throughout the area.
 - Pest Free Waitākere: in 2017 a proposal to create a new platform with the capacity to coordinate and raise funds for weed and pest projects was initiated
- **The Sustainable Neighbourhood Programme** ceased to receive funding support from the Regional Environmental Programme in 2015 and from the Waitākere Ranges Heritage Area Programme in 2016. In 2013 31 street-based groups within the heritage area received support from the Programme. In 2017 approximately 12 former Sustainable Neighbourhood Groups continue their activities, either independently (in Piha, Swanson and Te Henga / Bethells Beach) or with continued support from the Gecko Trust (five groups in South Titirangi as part of South Titirangi Neighbourhood Network) or Ecomatters Trust (four groups in Little Muddy Creek catchment).
- **New community-led pest-free initiatives** have emerged, many of them with a long-term objective of plant and/or animal pest eradication at a relatively large scale (neighbourhood, landscape unit or catchment). The areas covered include:
 - Waima to Laingholm
 - Oratia
 - Cornwallis Peninsula
 - South Titirangi

- Titirangi Village
 - Waitākere River Valley
 - Piha
 - Waiatarua
- **Strategic weed control projects:** the Waitākere Ranges Local Board has funded two projects, delivered by Ecomatters Environment Trust, to educate, encourage and support land owners with weed management issues on their property in strategic locations surrounded by, or at the fringe of, regional parkland. These include:
 - weed control buffer zone in Henderson Valley, Oratia, Waiatarua, Laingholm
 - weed control programme (Climbing asparagus) in Piha, Karekare and Huia
 - Community-led response to kauri dieback: The **Kauri Rescue Project** was set up in 2016 to engage landowners in citizen science for the treatment of kauri dieback disease.



Kauri Rescue stall at Titirangi Village Market, February 2018.

- **New conservation land:** In November 2016 the Matuku Reserve Trust bought 37 hectares of bush and wetland, naming it 'Matuku Link', after a fundraising campaign. The property forms a connection between neighbouring eco-restoration projects Ark in the Park, Habitat Te Henga and the Forest and Bird reserve Matuku.

- **Celebration of conservation volunteerism:** The Waitākere Ranges Local Board and Ecomatters Environment Trust partnered to deliver an awards programme for environmental volunteers (Love your Place Awards), which was organised for the first time in 2016.
- **Native plant nurseries** were established by Ecomatters Environment Trust, Waitākere Rivercare and South Tiritangi Neighbourhood Network to support community plantings.
- **Small grants:** The Waitākere Ranges Local Board provides funds that are administered by Ecomatters Environment Trust. This is a quick response grant scheme (under \$500) to support environmental and place making projects across the local board area (Love Your Neighbourhood) since 2015/16. This is in addition to the local board grant programme and Regional Environmental and Natural Heritage Grant Programme.
- **Lagoon water quality:** A number of initiatives (research, community engagement, technical advice to land owners, grant incentives and rate-based credit for a new septic tank) were funded by Auckland Council and the Waitākere Ranges Local Board during this period. These sought to encourage communities and land owners to understand the cause of e-coli contamination in the lagoons at Piha, North Piha, Karekare and Te Henga / Bethells Beach, and initiate community-led and private landowner action. A community-led initiative in Te Henga / Bethells Beach (Swimmable Waterways Te Henga) has taken the lead to continue monitoring and implement actions to encourage behaviour change.
- **The Weedfree Trust and Keep Waitākere Beautiful Trust** were incorporated into Ecomatters Environmental Trust in 2015 and many of their activities continue to be delivered by the Trust.
- **The Piha Education Trust** ceased to operate a wetland restoration and environmental education programme for west Auckland Schools on the Ministry of Education land at Piha. Auckland Council acquired the land in 2017. Subsequently in late 2017 and early 2018 the Waitākere Ranges Local Board has begun working with local community groups to restore the wetland and develop the site for other activities.

Overall, the period saw more strategic and coordinated approaches to pest control by volunteers and private land owners across larger areas. Some of these were supported by the technical and community development capability of local organisations such as Ark in the Park, Ecomatters Environment Trust, Gecko Trust and council staff, and some with funding support from the Waitākere Ranges Local Board.

These developments open opportunities for increased, improved and ongoing collaborations between community groups, Auckland Council and other potential funders across the heritage area. The newly launched Pest Free Auckland project provides opportunities to enhance collaboration through resourcing, coordination and leveraging community efforts and council spending with external funds.

The area of benefit from the organised environmental initiatives listed above totals approximately 3537 hectares. Table 25 below provides an estimate of the specific areas under active community stewardship or associated with neighbourhood initiatives in 2017.

Table 25: Estimate of specific areas under active community stewardship/neighbourhood initiatives

Reserve/Project name	Size	Administered by
Ark in the Park	2300 Ha	Auckland Council, Forest and Bird, volunteers, local landowners
La Trobe Forest Restoration Project	144 Ha	Local residents
Lone Kauri Forest Restoration Group	194 Ha	Local residents
Matuku Reserve and Matuku Link	157 Ha	Forest and Bird, Queen Elizabeth II Open Space Trust
Forest Ridge Community Group	89 Ha	Local residents
Steam Hauler Track Residents' Group	57 Ha	Local residents
Te Henga Beach Care	45 Ha	Local residents
Friends of Whatipu	561 Ha	Local residents
Project Twin Streams (Upper Opanuku)	4 Ha	Local residents/Auckland Council
TOTAL	3537 Ha	



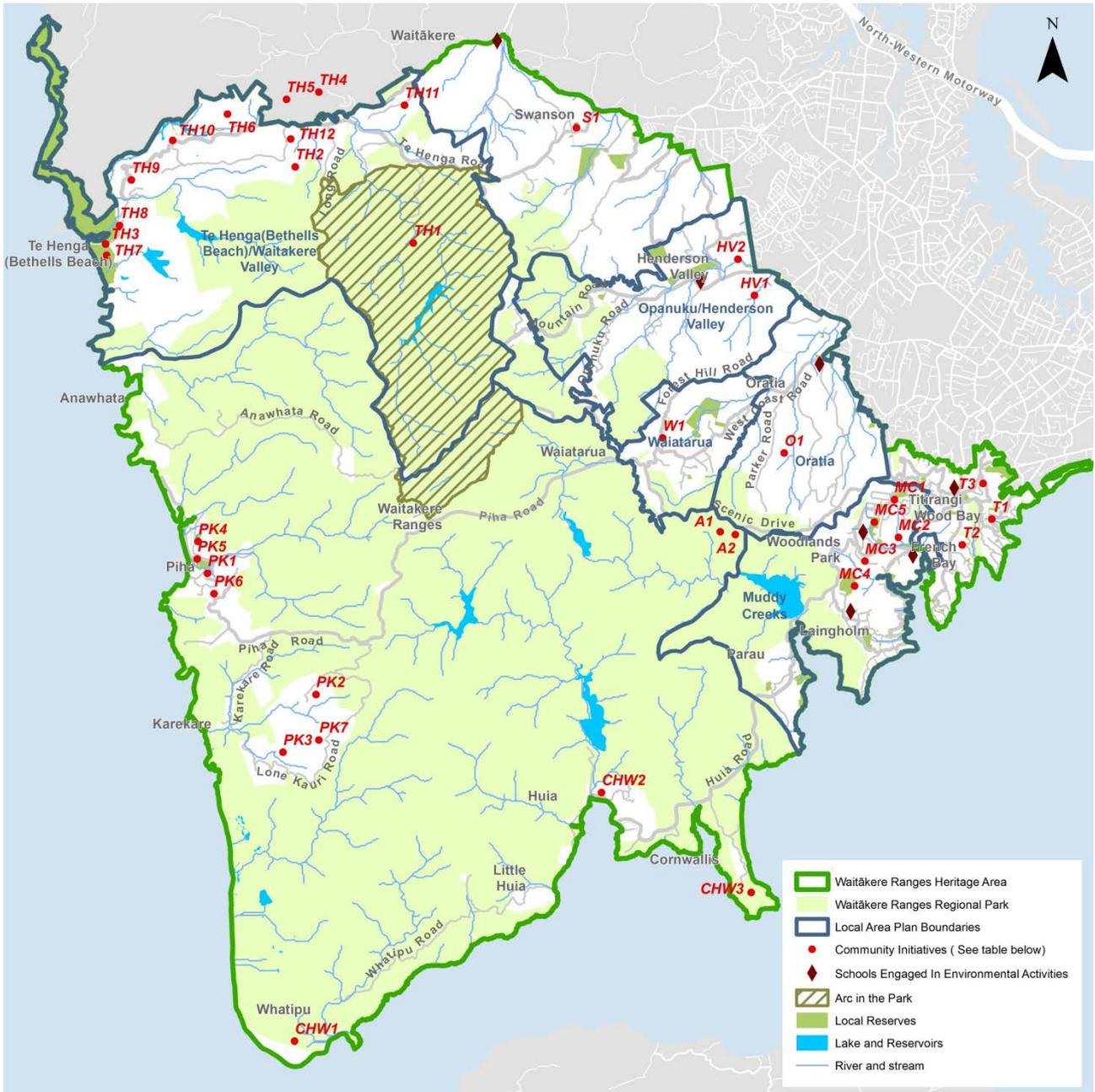
Trees for survival planting day at Matuku Link wetland. (Source: Gail Allende)



Trapping workshop by Ken Harrop at Matuku Link. (Source: Annally van den Broeke)

Map 16 below shows the location of most of the community pest plant and animal control initiatives (refer to Table 26) within the heritage area between 2013 and 2018.

Map 16: Community pest plant and animal control initiatives



See Table 26 below for description of community initiatives identified on this map.

Table 26: Community pest plant and animal control initiatives 2013 to 2018

Community pest plant and animal control initiatives 2013 to 2018		
Map 16 legend reference	Name of project or group	Focus of activity
TH	Te Henga / Bethells Beach, Waitākere Valley	
TH1	Ark in the Park	Approximately 2300 hectares. Pest animal control and biodiversity monitoring.
TH2	Ark in the Park buffer zone	Pest animal control (rats, mustelids and possum control) in 800 hectares
TH3	Te Henga / Bethells Beach Care Group	Dune restoration plantings
TH4	Forest Ridge Community Group	Pest plant and animal control (approximately 140 hectares)
TH5	Matuku Link	Pest animal control (rat and mustelid), pest plant control (37 hectares)
TH6	Matuku Reserve	Pest animal control (rats, stoats, ferrets and possums) (approximately 120 hectares)
TH7	Te Henga / Bethells beach dotterel protection programme	Pest animal control (rats and mustelids)
TH8	Te Henga / Bethells beach Track Environmental Group	Pest plant and animal control and track maintenance
TH9	Te Henga / Bethells beach weed control projects	Pest plant control
TH10	Habitat Te Henga	Pest animal control (mustelids), introduction of threatened bird species (pāteke), wetland biodiversity monitoring
TH11	Steam Hauler Track residents	Pest plant and animal (rat, possum)
TH12	Waitākere Rivercare	Pest plant control and riparian planting, eco-sourced native nursery, environmental education
S	Swanson	

S1	Swanson Sustainable Neighbourhood	Pest plant and animal control
HV	Henderson Valley / Opanuku	
HV1	Anamata Stream Restoration	Pest plant control and riparian planting
HV2	Project Twin Streams - Opanuku Stream	Stream restoration
W	Waiatarua	
W1	Waiatarua Weed Action Group	Pest plant control
O	Oratia	
O1	Oratia Native Wildlife Project	Pest plant and animal control
A	Arataki	
A1	Friend of Arataki	Fundraising for volunteer activities, environmental education
A2	Arataki Gateway Sanctuary	Pest animal control
T	Titirangi / South Titirangi	
T1	Otitori Sanctuary Project	Possum, rat and mustelid control in South Titirangi
T2	South Titirangi Neighbourhood Network	Pest plant and animal control, native vegetation planting
T3	Titirangi Village Restoration Project	Rubbish removal, pest plant control and native vegetation planting
MC	Muddy Creeks Waima/Woodlands Park/ Laingholm/Parau	
MC1	Waima to Laingholm Pest Free Zone	Pest animal control
MC2	Little Muddy Creek/Gill Esplanade	Pest plant control and native vegetation planting
MC3	Minnehaha Neighbourhood Conservation Group	Pest plant control and native vegetation planting
MC4	Owens Green/Muddy Riders Club	Pest plant control and native vegetation

		planting
MC5	Waituna Action Group	Pest plant control and native vegetation planting
CHW	Cornwallis/Huia/Whatipu	
CHW1	Friends of Whatipu	Beach clean-ups, native vegetation planting, seed collection, education, biodiversity monitoring
CHW2	Huia Weed Warriors	Pest plant control and native vegetation planting
CHW3	Cornwallis Petrel Heads	Pest animal control
PK	Piha/Karekare/Anawhata	
PK1	Beach Valley Road Sustainable Neighbourhood	Pest plant control
PK2	La Trobe Forest Ecosystem Restoration Project	Pest animal control (rodent and possum) (approximately 144 hectares)
PK3	Lone Kauri Forest Restoration Group	Pest animal and plant control (approximately 194 hectares)
PK4	Piha Coast Care Group	Supply of stoat traps, re-vegetation and monitoring of dunes, education and advocacy on dune protection
PK5	Pest Free Piha	Development of a pest plant and animal eradication strategy
PK6	Rayner Weeders	Pest plant control
PK7	Karekare Landcare	Pest plant control
<p>Note:</p> <p>This information does not include:</p> <ul style="list-style-type: none"> • actions of individual landowners on their own property, other than those undertaken with support from the above projects/groups • actions of regional park volunteers • actions of groups other than those listed in the table above, which could not be identified during this work. 		

6.3.5 Local area plans prepared under the Act

Auckland Council and the Waitākere Ranges Local Board have completed five local area plans (LAP's). These and their date of completion are listed below.

- Waiatarua Local Area Plan – December 2009
- Oratia Local Area Plan – December 2009
- Henderson Valley / Opanuku Local Area Plan – October 2010
- Muddy Creeks Local Area Plan – February 2014
- Te Henga / Bethells Beach and the Waitākere River Valley Local Area Plan - October 2015

The local area plans provide an important resource for communities and the Waitākere Ranges Local Board to hold the local vision aligned to the Act and an outline of actions to achieve this. The local area plans also provide an official record that is useful in advocacy for funding so that the actions within them can be initiated in the future.

6.3.6 Historical and cultural groups

The historical and cultural groups within the heritage area undertake a variety of activities and events that include history, music, literary and visual arts (refer to Table 27).

Table 27: Historical and cultural group activities 2013 to 2017

Name of organisation/group	Notes on activities since 2013-2017
Lopdell House	\$20m upgrade and extension to existing building 2012-2014 creating Te Uru Gallery, café/restaurant, upstairs gallery, gift shop, offices and meeting rooms.
Oratia Folk Museum	Ongoing. Open every 2 nd Sunday, monthly, and by arrangement.
Going West Trust	Continued, annual programme of literary arts.
Huia Settlers Museum	Museum open to public Saturdays and Sundays, and for events and commemorations.
McCahon House Trust	Annual residence awards and public viewing.
Protect Piha Heritage Society	Heritage information events, Piha mill gala day, publications, advocacy.
Donner House	Restoration of Donner House.

Titirangi Community Arts Council Incorporated	Upstairs Gallery established in Lopdell House in 2014.
Titirangi Festival Trust	Supports and organises regular Titirangi Festivals including the 2016 Titirangi Music Festival.
West Coast Gallery	Piha Gallery and events programme.
West Auckland Historical Society	Historical talks, re-enactment of history of Henderson Mill, participation in Twin Streams Project (Opanuku Stream).

Key changes to community-based cultural heritage activities since 2013 have been as follows:

- \$20m upgrade and extension to Lopdell House building in Titirangi in 2012-2014 creating Te Uru Gallery, café/restaurant, Upstairs Gallery, gift shop, offices and meeting rooms.
- Titirangi Music Festival in 2016 by Titirangi Festival Trust.
- The Waitākere Ranges Heritage Conference October 2016 and 2017, with funding from the Waitākere Ranges Local Board. It provides an opportunity for local experts in history and iwi to share their knowledge of the cultural heritage of the heritage area.
- A local Te Henga / Bethells Beach group (Swimmable Waterways Te Henga) was set up in 2017 and initiated the design of an information and interpretation feature, with support from iwi, at the entrance to the beach.
- The Waitākere Ranges Protection Society received a local grant to publish a history of the Waitākere Ranges Heritage Area Act, to be launched at the 10-year anniversary of the passing of the Act in April 2018.
- Waitākere Open Studio weekend organised annually since 2015, funded by the Waitākere Ranges Local Board. This event enables local artists to promote and exhibit their creations in their studio setting. The event has grown in popularity both in the number of artists participating, and number of visitors.



Lopdell House and Te Uru Gallery, Titirangi. Upgrade and extension undertaken 2012-2014.

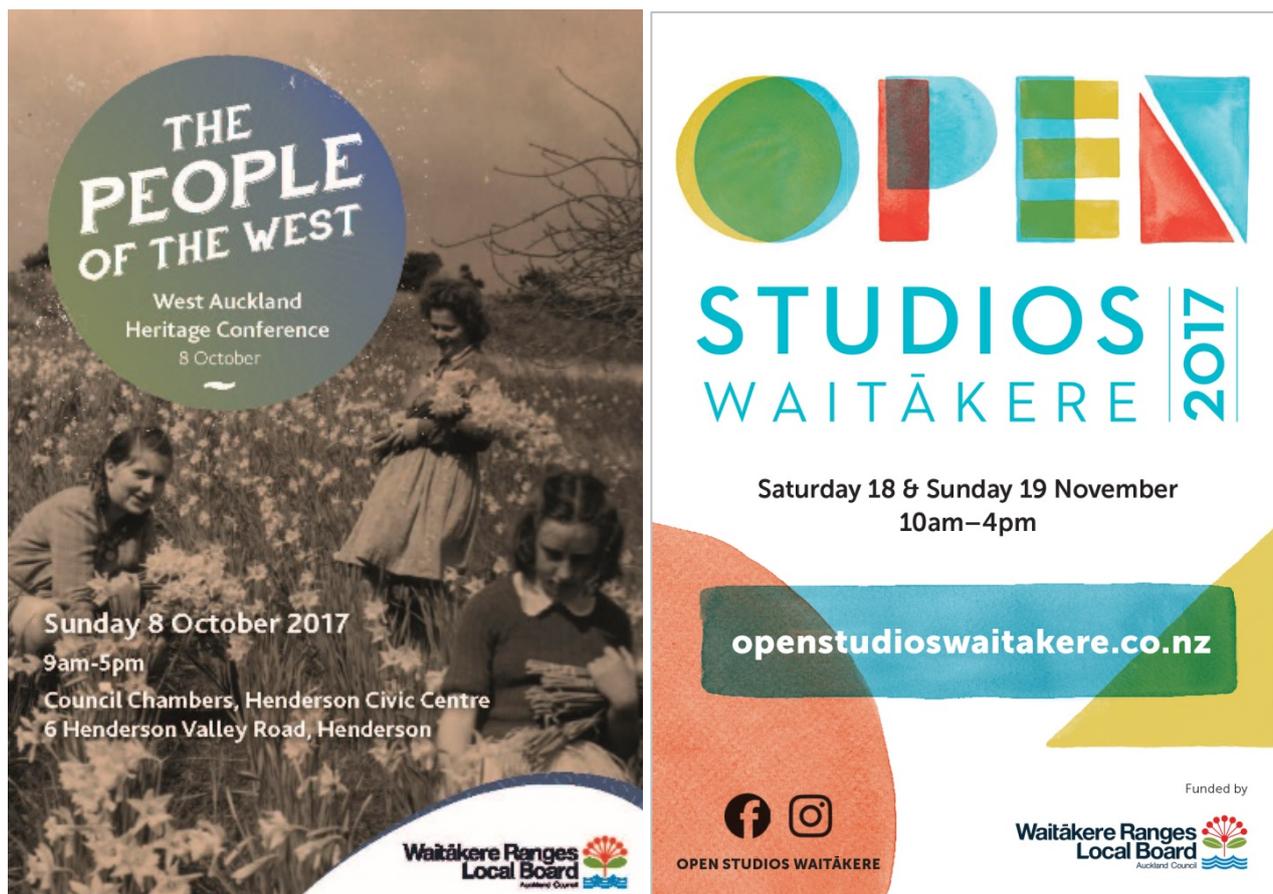


Image on left: Brochure for West Auckland Heritage Conference (2017). Image on right: Brochure for Open Studios Waitākere (2017).

6.3.7 Community facilities

The service organisations of the heritage area are diverse and support the heritage features of the heritage area. The organisations and their facilities, whilst supporting their core functions, are often hubs around which community and social activities also take place.

Appendix 14 lists the facilities, principally within the heritage area, that are available for community social and/or recreational use owned or partially owned by the Auckland Council and others. Significant changes since 2008 in those facilities (other than maintenance) are recorded in Appendix 14.

There have been no significant changes to community facilities since 2012, apart from internal refurbishment or small additions to existing facilities. Notably, the Laingholm Village Hall and Titirangi Memorial Hall were both damaged by fire in 2014 and 2017 respectively.

6.3.8 Environmental stewardship in schools

Enviroschools is a growing network of schools, early childhood centres and communities who aim to make a positive difference to our environment. Schools create an environmental pathway which they move along and each Enviroschools journey is unique. The Enviroschools programme is based around five guiding principles – Empowered Students, Māori Perspectives, Sustainable Communities, Respect for Diversity and Culture and Learning for Sustainability.

Students are given the opportunity to connect with their own environments through a range of resources and are encouraged to explore how they can take action on global issues. These global issues have been separated into five overlapping themes which are Energy, Zero Waste, Water Life, Living Landscapes and Ecological Building.

There are 13 of the 14 schools that serve the heritage area participating in the Enviroschools programme, as well as a number of early childhood centres. These are:

- Glen Eden School
- Henderson Valley School
- Kaurilands School
- Konini School
- Laingholm School
- Lone Kauri Community School
- Oratia School
- Prospect School
- Swanson School
- Titirangi School
- Titirangi Rudolf Steiner School
- *Titirangi Kindergarten
- *Waitākere Primary School
- Woodlands Park School

*New schools or early childhood centres which have joined Enviroschools since 2013.

6.3.9 Fire services

Throughout the heritage area is a network of facilities and associated equipment providing fire and emergency services (e.g. motor vehicle accidents, oil spills and storm damage). These services are supported on a voluntary basis and are established in the following locations:

- Huia
- Waiatarua
- Laingholm

- Karekare
- Te Henga / Bethells Beach
- Piha
- Titirangi.

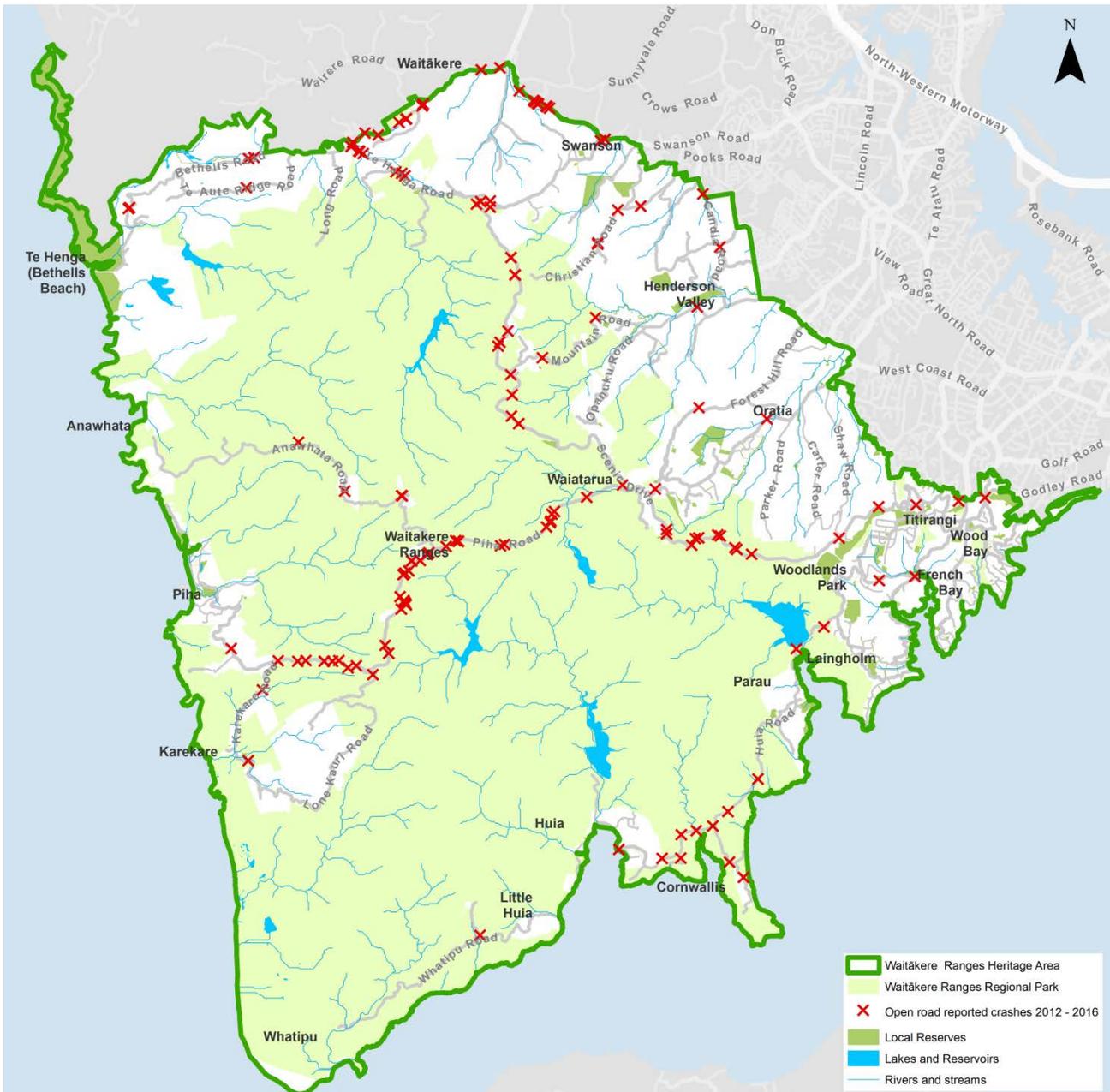
Additionally over this period two community response groups were established in Laingholm and Te Henga / Bethells Beach. These join other such groups and aim to perform an emergency management role in these local communities.



Image on left: Bethells Valley Fire Station. **Image on right:** Titirangi Kindergarten.

Reported motor vehicle accidents are recorded into a New Zealand Transport Agency's database (Crash Analysis System). Map 17 and Table 28 below show the location and number of reported crashes between 2012 and 2016. The light blue highlight shows that Piha Road has the most reported crashes, followed by Scenic Drive, Bethells Road and Huia Road. Anecdotal evidence indicates that there are a significant number of motor vehicle accidents that are not reported.

Map 17: Open road reported crashes 2012 to 2016



See Table 28 below for further information about the location and number of reported open road crashes.

Table 28: Open road reported crashes 2012 to 2016

Location of Crash	2012	2013	2014	2015	2016	Total
Anawhata Road		1	1	1	1	4
Bethells Road	1	1	5	3	2	12
Candia Road		1				1

STATE OF THE WAITĀKERE RANGES HERITAGE AREA 2018

Christian Road	1			2		3
Cornwallis Road		2				2
Donald McLean Road			1			1
Duffy Road					1	1
Forest Hill Road	1					1
Henderson Valley Road	1				1	2
Huia Road	1	5		3	2	11
Kaitarakihi Road			1			1
Karekare Road		1				1
Lone Kauri Road		1	1			2
Mountain Road	1	1				2
O'Neills Road		1			1	2
Piha Road	13	6	9	7	7	42
Scenic Drive	11	4	7	4	6	32
Te Aute Ridge Road				1		1
Te Henga Road	1	1	4	1		7
Titirangi Road		1				1
Wairere Road	1	1	2	1	4	9
Waitākere Road	1		1	2		4
West Coast Road	1		1			2
Totals	34	27	33	25	25	144

6.3.10 Surf lifesaving clubs

Local and other volunteers support a network of surf clubs that maintain regular patrols of beaches during the summer months. These are key to the safe public enjoyment of these beaches for visitors and local residents. These clubs are located in the following locations:

- Bethells Beach
- United (North Piha)
- Piha (southern end of Piha Beach)
- Karekare.

6.3.11 Local news media

The following media regularly provide information on local history and heritage, weed and predator management, local initiatives, community events, local business advertising and other local news. Increasingly, these media are also found online on community-run websites and they are complemented by community Facebook pages.

- The Roundabout (previously Laingholm Roundabout)
- Window on Swanson
- Piha Community News
- Waiatarua News
- The Fringe (formerly Titirangi Tatler).

6.3.12 Local books and articles

Over the monitoring period further books and articles recording the natural and community history of the area have been published. This is an extensive list and while not exhaustive has been compiled into a bibliography that is attached as Appendix 15 to this report.

6.3.13 Regional Park volunteers

Auckland Council has an extensive programme partnership with community groups across the region that provide volunteer hours and resources to maintain and improve public open space assets. This is particularly true of the Waitākere Ranges Regional Park and aggregated volunteer hours are set out below in Table 29. A decline in volunteer hours since 2012 is noted.

Table 29: Volunteer hours in the regional park

Period	Volunteer Hours
May 2008-April 2009	8000
May 2009-April 2010	12,572
May 2010-April 2011	16,114
May 2011-June 2012	26,808
July 2012-June 2013	17,857
July 2013-June 2014	19,093
July 2014-June 2015	18,159
July 2015-June 2016	15,432
July 2016-June 2017	15,325

6.4 Funding support services in the heritage area

The Regional Environmental and Natural Heritage Grant Programme (RENH) provides grants, practical support and advice to members of the community to help them protect and enhance their local environment and heritage. This fund is open to applications from throughout Auckland. Since 2015 this fund has mainly been granted to larger projects that are deemed to be of regional significance. Applications for local environmental projects are now considered under the local board's local grant programme.

Table 30 below shows the amount that was approved for spending since 2012 to support environmental initiatives within the heritage area.

Table 30: Approved spending from 2012 to 2017

2012/2013	2013/14 (Environmental Initiatives Fund)	2014/15 (Environmental Initiatives Fund)	2015/16 (RENH)	2016/17 (RENH)
\$15,343	\$14,450	\$31,900	\$63,000	\$25,000

Waitākere Heritage Fund

This fund has been replaced with the Regional Heritage Grant programme and Local Grant/Quick Response grants from the Waitākere Ranges Local Board.

Waitākere Ranges Local Board discretionary funds

These funds assist groups to provide activities, projects, programmes, initiatives, and events that make a positive contribution within the local board area. Funds are provided particularly where the activity gives effect to the priorities in the Local Board Plan - such as environmental, cultural, arts, community development, recreational and heritage initiatives, and supporting youth and Māori.

Local Grants and Quick Response Grants (Waitākere Ranges Local Board)

The following table (refer to Table 31) shows the amount that was approved by the Waitākere Ranges Local Board to support environmental initiatives within the heritage area.

Table 31: Local Board funding

2015/16	2016/2017
\$7440	\$46,486

Community weed bins

The community weed bins provide a free environmental weed disposal service to residents at six sites throughout the Waitākere Ranges Local Board area. The desired outcomes of the free service are that more households will control their environmental weeds if disposal is easier and cheaper, and there will be less incentive to illegally dump weeds in places such as council reserves. The number of weedbins provided between 2014 and 2017 is shown below in Table 32.

A challenge for this programme has been the ongoing inappropriate use of the bins. A range of non-target materials are dumped, leading to higher disposal costs. The budget has needed to be increased year-on-year since 2013 to manage this. The funding was for \$60,000 in 2014/2015, \$88,500 in 2015/2016, and in \$90,000 in 2016/2017 with an additional \$10,000 made available when the project went over budget.

In the 2016/2017 year the Kauri Loop Road and Kowhai Reserve bins were changed to being available for only one day a month. They were attended by staff that could advise on weed control and monitor what was placed in the bins. This reduced costs and the

dumping of non-target material in the bins. In 2017/2018 this service continued, with two permanent bins at Piha and Huia, and four rotating bin sites (Western Road, Kowhai Reserve, Kauri Loop Road and Mountain Road).



Community weed bin at Piha Domain.

The 'War on Weeds' is a complementary programme that the Waitākere Ranges Local Board funds in partnership with the Henderson-Massey Local Board. In March each year, green waste bins are placed at a number of extra sites across Waitākere and Henderson-Massey Local Board areas. An awareness campaign is run to encourage people to remove environmental weeds from their property. The War on Weeds relies somewhat on the existing network of community weed bins to achieve good coverage.

Table 32: Numbers of weed bins provided between 2014-2017

Period July to June by year	Number of weed bins provided
2014-2015	127
2015-2016	243
2016-2017	238
Total 2014-2017	608

Project Twin Streams (PTS)

This is a large-scale environmental restoration and storm water management project. Engages local residents in the project through partnering with local community organisations to deliver the streambank restoration programme, and to deliver community development benefits within the catchment. Within the heritage area, the PTS project works with landowners along the upper Opanuku Stream in Henderson Valley.

Restoration planting and sand dunes

Council coastal engineers have assisted with advice on dune restoration, coastal erosion and specialist input for dune management programmes. The Council's Biodiversity team assist with restoration advice.

Beach clean-ups

This is largely provided by regional park staff and community groups such as Sustainable Coastline or SeaWeek.

6.5 Suggestions for the future

- Undertake a follow up Waitākere Ranges Heritage Area Business Stocktake report by 2022. This stocktake would provide benefit by being repeated prior to the next monitoring report in 2023.
- Complete the local area plans programme as funding permits over the period 2018-2023.
- Greater coordination and support for the various community and volunteer groups, including best practice techniques for the work they undertake. This could be part of a wider coordinated and integrated approach for all stakeholders and activities within the heritage area.
- Investigate the decline in volunteer hours in the regional park so that council can improve volunteer recruitment and retention.

6.6 Funding Implications for the future

- The Business stocktake review in 2022 will require approximately \$15,000 to be completed.
- The completion of the local area plan programme will be largely supported by council but will require a budget to support technical analysis, public engagement and production costs.
- Greater coordination and support of various community and volunteer groups will require resources and funding. This could initially be scoped, to map out the elements requiring coordination and identify options for further investigation. This may be part of wider coordination of activities across the heritage area (i.e. council, council-controlled organisations, iwi, community groups)



Image on top: Bethells Café. Image on bottom: Huia Store Café.

7 Topic: Historic heritage and scheduled trees

This topic is split into two sub-topics; historic heritage and scheduled trees (Notable Trees). For the purposes of this report each sub-topic is set out separately.

Sub-topic: Historic heritage – evidence of past human activities

7.1 What is included in this topic

For this sub-topic the primary Waitākere Ranges Heritage Area Act objective is to protect, restore and enhance the heritage area and its heritage features. The Act specifies that these heritage features include the evidence of past human activities such as timber extraction, gum-digging, flax milling, mineral extraction, quarrying, extensive farming, and water impoundment and supply. However, this does not exclude evidence of other past human activities such as Māori settlement and use.

7.2 Key findings

Relevant heritage features (section 7 of the Act): 2(k), (l)

Summary – state of historic heritage

- For recently surveyed archaeological sites in the southern coastal area (Manukau Harbour) and regional and local park land, coastal erosion and parks infrastructure and maintenance are the greatest risk to integrity, condition and long-term survival of the site. For just over half of these sites, the condition is 'poor'.
- For recently surveyed built heritage places the condition is generally 'good'.
- There were only a small number of resource consents or outline plan of works granted that specifically triggered a historic heritage rule in a district or regional plan.

Progress made towards achieving the objectives:

- Overall there is still insufficient knowledge or baseline data to determine the state of the historic heritage environment or the progress towards achieving the objectives of the Act. However good progress has been made through the various heritage surveys undertaken since 2013.
- Preliminary analysis of the archaeological sites surveyed to date (sites in southern coastal area and local and regional park land) indicates that these heritage features are not appropriately being protected, restored and enhanced.
- Preliminary analysis of the built heritage sites surveyed to date indicates that these heritage features are generally in better condition than the archaeological sites surveyed. Improvements could be made to the maintenance and management of these buildings in order to appropriately protect, restore and enhance these heritage features.
- More robust information is required about the effect of consented development or works

on historic heritage, to determine whether these heritage features are appropriately being protected, restored and enhanced.

Supporting documents and legislation

The Act provides for the preparation of local area plans. Local area plans do not provide formal protection of historic heritage, but they do enable the identification of 'heritage features' within an area.²⁸ They also enable communities to identify long term objectives for their area.

Since the 2013 Monitoring Report two new local area plans have been prepared; The Muddy Creeks Plan 2014 (Parau, Laingholm, Woodlands Park and Waimā) and Te Henga/Bethells Beach and the Waitākere River Valley 2015. Both these local area plans include local aspirations for the cultural heritage of the area. These include increasing knowledge, awareness and protection of the area's cultural heritage in particular archaeological sites and wāhi tapu. Both the local area plans refer to the importance of the archaeological survey project which is discussed in detail in section 7.4 below.

The requirements of the Act to manage and conserve historic heritage is supported by several other key pieces of legislation, including:

- Resource Management Act (1991)
- Heritage New Zealand Pouhere Taonga Act (2014) (HNZPT Act) (formerly Historic Places Act 1993)
- Reserves Act (1977)
- Conservation Act (1987).

A summary of the key interrelationships between these acts and historic heritage in the heritage area is included in Appendix 16.

7.3 What we measure changes against

The 2013 Monitoring Report used the following indicators:

- extent of coverage and comprehensiveness of historic heritage surveys and record systems
- damage and destruction of historic heritage sites (consented and unconsented)
- level of protection of sites
- number and extent of sites under active management (and co-management with tangata whenua)
- condition of known historic heritage places.

²⁸ Heritage features are set out in s7 of the Waitākere Ranges Heritage Area Act

This report does not use those indicators in the same way, and instead looks at two key aspects:

- the improvements to the council's knowledge and data records of known historic heritage to determine the state of the historic heritage environment e.g. heritage surveys
- consented development associated with scheduled historic heritage places.

For other aspects relating to historic heritage, see the Recreational use of the heritage area, People and communities and Water catchment and supply topics.

7.4 Changes between 2013 and 2018

Improvements to the council's knowledge and data of known historic heritage

The 2013 Monitoring Report²⁹ determined a number of key indicators³⁰ that were intended to establish the condition, management, and threats to the historic heritage of the heritage area. However, due to the lack of consistent, evidence-based data and current field surveys it was not possible to accurately quantify the heritage resources, significantly limiting the suitability of those indicators. The 2013 Monitoring report concluded that this absence of quantitative data was the greatest impediment to achieving the objectives of the Waitākere Ranges Heritage Area Act.

To rectify this, the 2013 Monitoring Report recommended a data collation and rationalisation study in conjunction with staged site survey and monitoring. This is considered to be the best method to establish a baseline from which to assess and conserve the condition of historic heritage in the heritage area.³¹

Progress in achieving the 2013 recommendations

The 2014/2015 financial year saw the completion of the Stage 1A Data Rationalisation Report (2015³²), designed to collate, rationalise, and organise the available data relating to the historic heritage resources of the heritage area.³³ Field work commenced in January 2016 with a survey of 300 archaeological sites located on the southern coast from Green Bay to Whatipu and 90 built heritage sites across the heritage area. This study identified a

²⁹ This was a technical report that informed the historic heritage section of the 2013 Waitākere Ranges Heritage Area Monitoring Report.

³⁰ 2013 heritage indicators (as in technical report): 1. Known sites and their extent, 2. Protected sites, 3. Changes to site protection, 4. Management of sites, 5. Public interpretation of sites, 6. Consents granted to sites to aid change, 7. Damage and destruction of sites, 8. Site condition.

³¹ Plowman, M. October 2013. *Waitākere Ranges Heritage Area 2018 State of the Environment Historic Heritage Monitoring Report – Phase 1*. Auckland Council.

³² Tatton, K. July 2015. *Stage 1A – Historic Heritage Data Collation, Review and Rationalisation: Survey and Monitoring Program Report*. Prepared for Auckland Council.

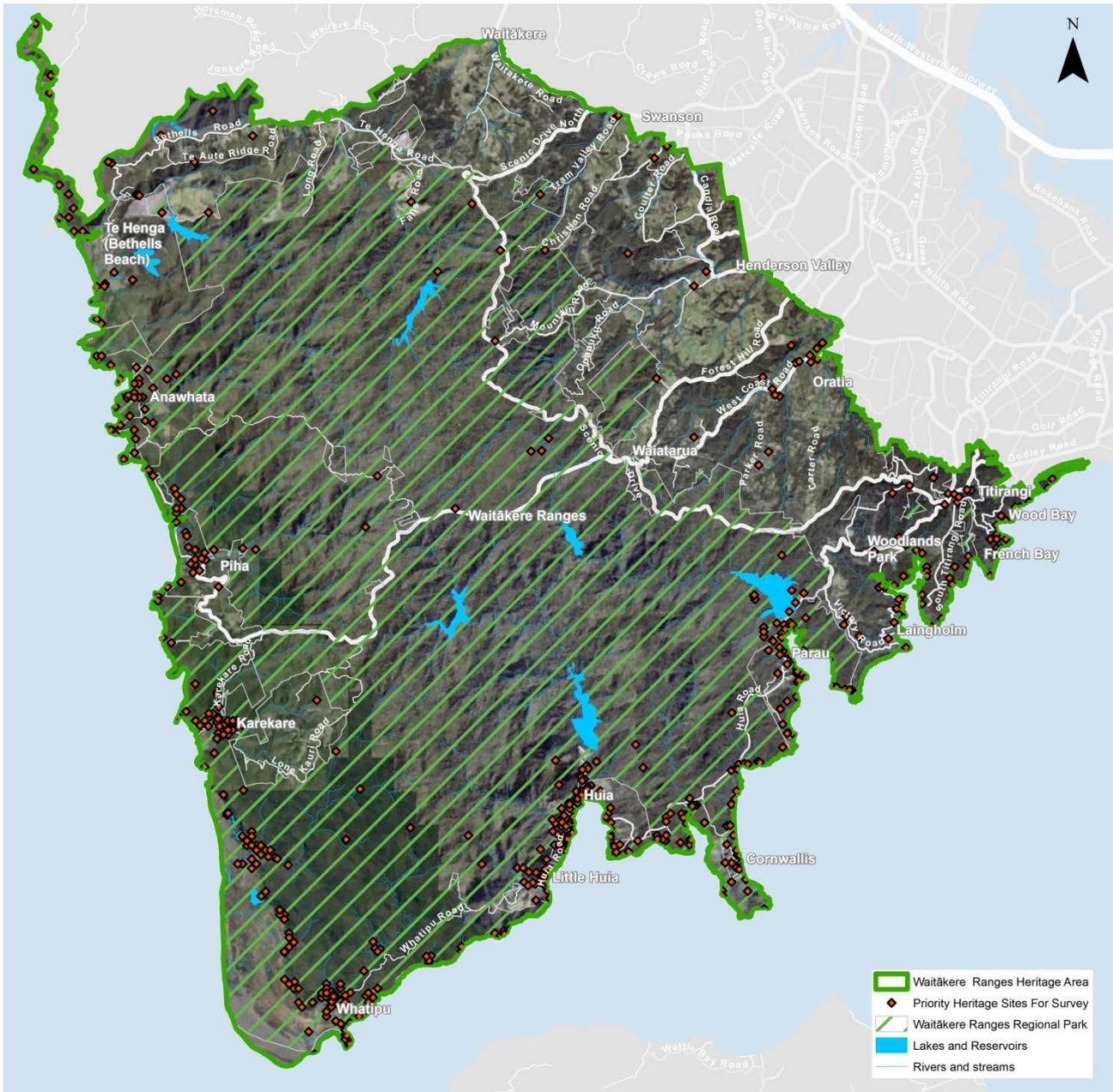
³³ Auckland Council October 2013:4

preliminary total number of heritage area heritage sites (1323) and nominated 653 priority sites for survey upgrade and monitoring. These include 90 Māori and European heritage sites scheduled in the (at the time) Proposed Auckland Unitary Plan, as well as 563 sites located primarily on Auckland Council land and/or within the coastal marine area that were at risk from recreational activities, amenity development and coastal erosion (see Map 18).

In 2015/2016 the council developed a field survey and monitoring programme for the priority sites, to establish a comprehensive baseline dataset and identify management priorities and opportunities for research and public education. This baseline dataset includes:

- establishing accurate site numbers, site location and site type descriptions
- establishing geographic information system (GIS) site extents (i.e. the visible extent of archaeological surface remains)
- assessment of site condition, integrity, primary threats/pressures identification; rate of deterioration
- assessment for scheduling and/or schedule upgrade (research as required)
- a range of management recommendations and monitoring timeframes
- an update of Auckland Council's Cultural Heritage Inventory (CHI) and New Zealand Archaeological Association (NZAA) ArchSite database records.

Map 18: Priority heritage sites for survey within the heritage area



Key findings

Archaeological Survey

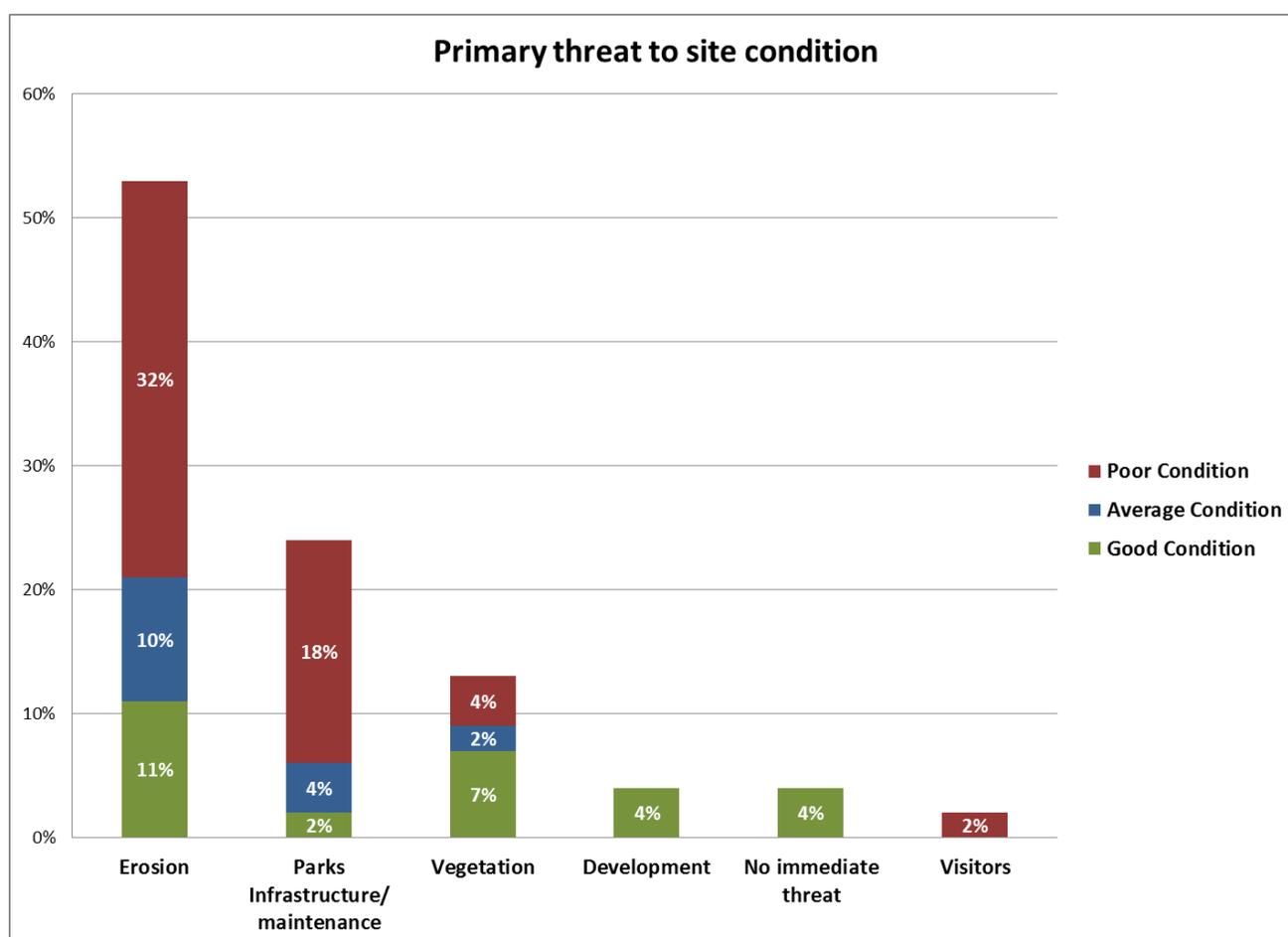
The archaeological field survey is in progress, with 164 of the 300 site visits completed to date (55 per cent). Although results are preliminary, some key findings are available for surveyed sites:

- 70 of the 164 sites have been relocated.³⁴

³⁴ Relocation means the site has been positively identified again since its last inspection rather than physically moved.

- 49 per cent of the 164 sites have not been relocated. These are either destroyed or have no visible surface remains.
- Four new coastal middens have been identified through field survey.
- 56 per cent of the surveyed archaeological sites are in 'poor' condition.
- Natural coastal erosion processes pose the biggest risk to site integrity, condition and long-term survival for 53 per cent of the sites relocated (see Figure 7).
- Auckland Council Parks management is the second biggest risk to archaeological site survival. Specifically, amenity installations, vegetation management and infrastructure development and maintenance (24 per cent) (see Figure 7).
- Inaccurate, single point site location coordinates pose a significant risk to site survival in coastal spaces with high recreational use.

Figure 7 Primary threats to archaeological sites condition (for the 70 sites completed to date)



The survey to date has focussed on the coastal marine area and local and regional park land. The results are therefore biased towards location-specific threats and pressures associated with recreational management and use, and coastal erosion processes. It is expected that these trends will vary marginally when the less accessible priority sites located on the west coast and the interior are surveyed, assessed and monitored.

It is also expected that sites in the coastal marine area and local and regional parks have been detrimentally affected by the pressures associated with coastal erosion processes and recreational use and associated amenity development. Importantly however, the loss of sites to coastal erosion is inevitable and difficult to prevent or inhibit, while the loss of site integrity to parks infrastructure development and maintenance is avoidable, if informed and sensitive heritage management is adopted.

To this end, a priority of the survey and upgrade has been to establish the original and the currently existing site extents to replace single point location data in council parks and reserves to mitigate risk and inform ongoing management and maintenance practices. Ideally, this GIS data should be incorporated into reserve specific heritage management and/or maintenance plans. This will provide clear operational guidelines to protect or remediate individual heritage sites in public spaces that may be detrimentally affected by high recreational use. An example of this revised GIS data and updated site extents is provided in Figure 8 below.

Figure 8: Updated site extents and location information for Cornwallis Beach.

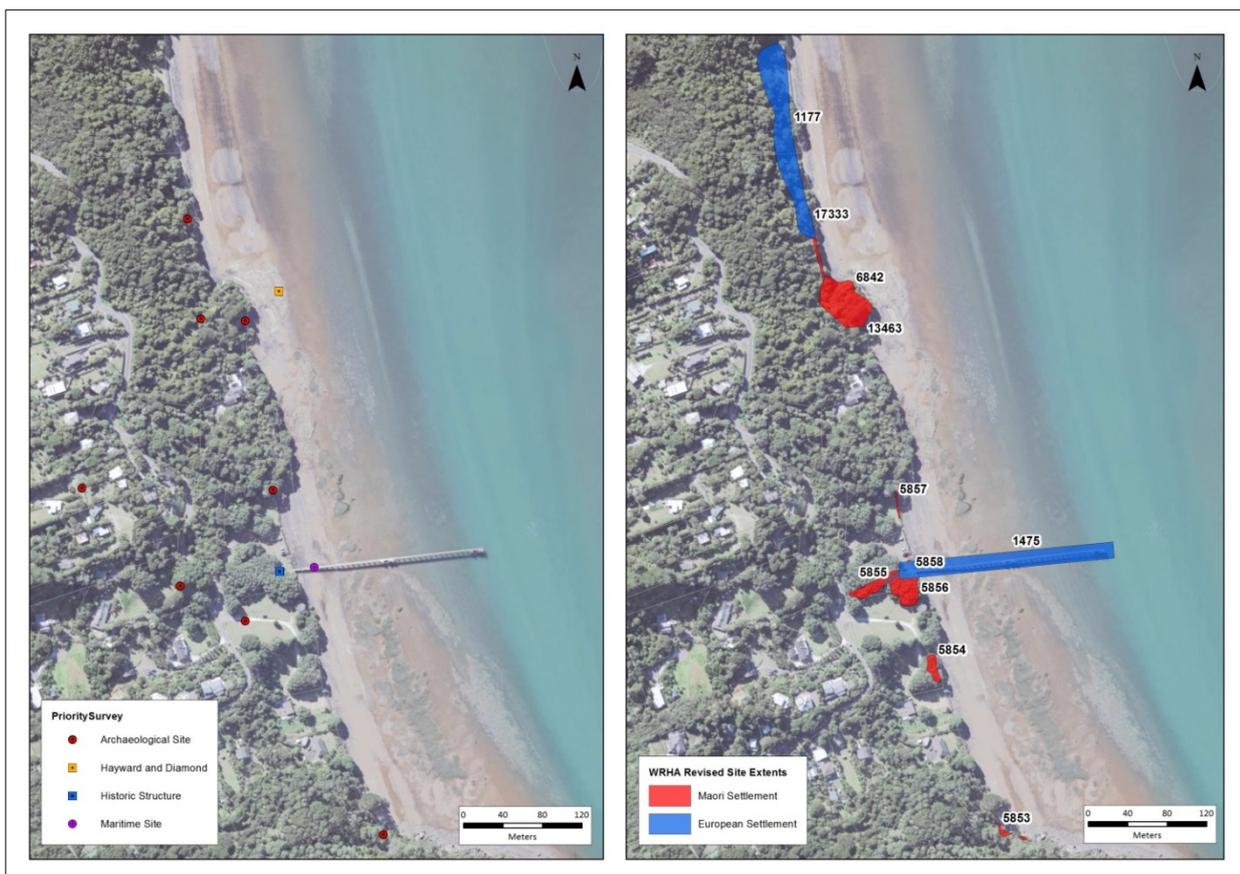


Image on left: original archaeological locational information. **Image on right:** updated site extents. Red are Māori settlement sites, blue are European settlement sites.



New coastal midden identified and recorded at Bryan Bay, Huia.

Built Heritage Survey

The built heritage survey of 90 priority sites is complete.³⁵ Unlike the archaeological survey that was restricted to public land, the built survey incorporated heritage buildings in private as well as public ownership. The amount of access available to the 90 sites varied considerably, ranging from full access to the site, including the interior, to no access to the site including no view from the public domain of the feature.

Key findings are³⁶:

- Overall the built heritage sites are generally well maintained, occupied, and/or used regularly. The condition assessment results ranged from 'poor' at the lower end of the scale through to 'excellent' at the higher end of the scale, with the majority at the higher end of the scale.

³⁵ The built heritage monitoring had three main elements of recording. The first was photographic and involved a site visit, the second was an update of the existing Cultural Heritage Inventory, and the third, the completion of a comprehensive monitoring form.

³⁶ Dave Pearson Architects, June 2017, *Waitākere Ranges Heritage Area Monitoring Report*. Prepared for Auckland Council.

- Breakdown of the exterior paint system was identified as the most common cause of decline in condition, particularly in the coastal or semi coastal environments.
- Most buildings surveyed showed evidence of previous and regular maintenance, and the overall good condition of the built heritage is testament to the efforts of previous owners and occupiers. However, although the intention of the maintenance undertaken has been to fix or alleviate damaged or defective components a common thread observed is the replacement of materials with readily available modern material choices that are not often sympathetic to the buildings' heritage values.
- It is important that the council and private owners are aware of the heritage status of the buildings they occupy and use. The continued maintenance of privately owned buildings can be encouraged with the appropriate information disseminated to the property owners. The method and timing in which the information is disseminated would be the council's responsibility. Further work is required to ascertain the form the information may be in and to what extent the implementation occurs, but provision of this information is essential and would be beneficial for maintenance and maintenance plans of both public and privately owned heritage buildings.



Image on Left: Liebergreen Cottage, Whatipu. Heritage building in Auckland Council ownership and part of the built heritage survey carried out by DPA Architects. **Image on right:** shows breakdown of the exterior paint system on the window frame. (Source: DPA Architects)



The Barracks, Karekare. Heritage building in private ownership, part of the built heritage survey carried out by DPA Architects. (Source: DPA Architects)

Public Buildings - Maintenance and Maintenance Plans

The preservation of heritage building fabric relies on quality and timely maintenance. For such maintenance to be managed successfully and not become a financial burden, a maintenance management plan is often beneficial. For buildings in Auckland Council ownership these are essential so that maintenance can be preventative rather than reactive ensuring that the council leads by example in implementing best practice standards for heritage buildings.

The council has initiated a region-wide Heritage Asset Management Programme for built heritage assets it owns to inform its management of its heritage structures.³⁷ Within the heritage area, 26 council-owned built heritage assets were identified.³⁸ Of these, 12 were surveyed for their condition, which comprised of an assessment of individual building components.³⁹ Table 33 below shows the Auckland Council built heritage assets surveyed as part of the Heritage Asset Management Programme.

³⁷ Heritage assets were defined as those which are formally scheduled as a Historic Heritage Place in the Auckland Unitary Plan, those identified in the Cultural Heritage Inventory or Heritage New Zealand's List.

³⁸ Auckland Council and Panuku CCO only

³⁹ The condition of the components were rated the following: H1 (very good to good condition, not requiring work in the next 5 years, H2 (moderate to poor, needing works done in the next 2-3 years) H3 (very poor, requiring immediate attention).

Table 33: Auckland Council built heritage assets surveyed as part of the Heritage Asset Management Programme

Built heritage Auckland Council asset	Address	Suburb
Craw Homestead	202 Anawata Road	Titirangi
Kedde House Electric Generator Shed	Anawhata Beach Track	Titirangi
Kedde House	Anawhata Beach Track	Titirangi
Rose Hellaby House Gardeners Cottage	517 Scenic Drive	Titirangi
Rose Hellaby House	517 Scenic Drive	Titirangi
Titirangi Memorial Park	1/500 South Titirangi Road	Titirangi
Museum in the Hills Titirangi Treasure House	418 Titirangi Road	Titirangi
Shadbolt House	35 Arapito Road	Titirangi
Shadbolt House Outbuilding (studio)	35 Arapito Road	Titirangi
Oratia Settlers Hall	565 West Coast Road	Oratia
Catholic Church	565 West Coast Road	Oratia
Paturoa Bach	588 South Titirangi Road	Titirangi

Overall, the buildings in the heritage area were determined to be in better condition compared to the wider region which were determined to be in the “good to moderate” condition range.⁴⁰ Initiation of the Heritage Asset Management Programme has been a significant step towards understanding the risks for Auckland Council-owned built heritage assets within the heritage area and could form the basis of building specific maintenance plans in the future.

⁴⁰ The most common action required to maintain the heritage value of the buildings is active monitoring and basic maintenance (55%), followed by the replacement (14%), refurbishment (10%), painting (9%) and repair (9%) of building components.



Kedde House and electric generator shed, Anawhata Beach Track. Auckland Council heritage assets assessed as part of the Heritage Asset Management Programme.



Image on left: Rose Hellaby House, Titirangi. **Image on right:** Treasure House, Titirangi. Both are Auckland Council heritage assets assessed as part of the Heritage Asset Management Programme. (Source: DPA Architects)

Private Buildings – Maintenance best practice

For heritage buildings to operate in this century, modifications are often required to accommodate modern lifestyles and possible change of use. Replacement of materials should be done sympathetically with the aim of retaining the heritage features and fabric where possible. Replacing 'like with like' is standard practice, but there may also be opportunities to correct previous poor material choices. To achieve the best heritage outcome, landowners may require guidance and appropriate knowledge and information must be readily available. Prioritisation of the creation and dissemination of relevant practical information guidelines for property owners of scheduled and non-scheduled heritage structures would be beneficial.

Research Topics

In addition to the baseline survey, the Stage 1A Historic Heritage Data Collation, Review and Rationalisation Report (2015)⁴¹ identified a number of priority research topics, four of which have been progressed to date. These topics include significant archaeological and built heritage sites that represent broad historic Māori and European settlement and industrial activities and land use in the heritage area. These studies are ongoing and will contribute detailed historical research and significance assessments to support scheduling in the Auckland Unitary Plan Historic Heritage schedule. These four topics are:

- the Gibbons family timber milling industries
- historic Māori settlement at Waiti Village and Parawai Pa
- the Piha Tramline
- the settlement history and associated built heritage of Oratia.

The knowledge gained through these studies will contribute to the understanding of the state of the historic heritage environment within the heritage area.

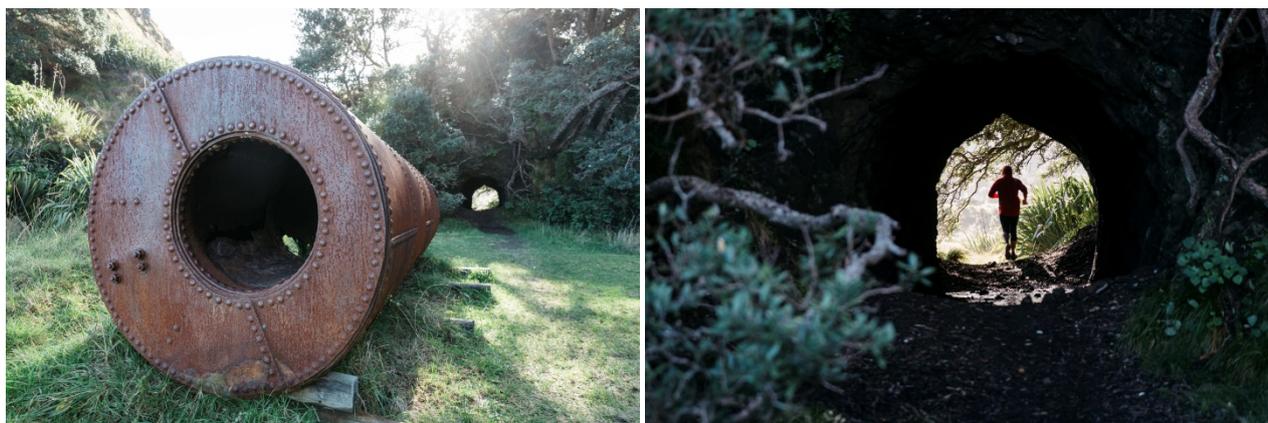


Image on left: Steam boiler Q11_355 (schedule ID 00022) with tunnel in background. **Image on right:** Karekau tramline extension tunnel Q11_369 (schedule ID 00021). Both are located on the Hillary Trail.

Consented development on scheduled historic heritage places

Changes to the district planning framework for historic heritage places 2013-2018

From 2013 to 2018 the rules that apply to historic heritage have changed from those in the Auckland Council District Plan - Operative Waitākere Section 2003 (Waitākere City District Plan), Auckland Council District Plan - Operative Rodney Section 2011 (Rodney District Plan) and Auckland Council Regional Plan: Coastal to the Auckland Unitary Plan.

Subdivision, use or development of historic heritage places within the heritage area may

⁴¹ Tatton, K. July 2015.

require resource consent. Section 13 of the Act requires council, when assessing resource consent applications, to either ‘have particular regard to’ or ‘consider’ the purpose of the Act and the relevant objectives. This includes the protection, restoration and enhancement of heritage features. Heritage features includes historic heritage places, regardless of whether they are included in a heritage schedule in a plan.⁴² Regional and district plans may contain rules specifically related to historic heritage places.⁴³ These rules usually relate to activities such as modification, demolition or destruction of a historic heritage place. In the heritage area, section 13 of the Act applies as well as the specific historic heritage objectives, policies, and rules (including assessment criteria) in the plan.

The Waitākere City District Plan identified and included heritage items in its Heritage Appendix and specific heritage rules applied to this. It also included rules that applied to recorded archaeological sites and known wāhi tapu sites regardless of whether they were included in the Heritage Appendix or not.

The Auckland Unitary Plan also includes a list of historic heritage places in Schedule 14 and the Historic Heritage Overlay rules apply to these places. The Auckland Unitary Plan does not contain rules for unscheduled archaeological sites or unscheduled wāhi tapu sites like the Waitākere City District Plan did.⁴⁴ However it does contain accidental discovery rules if ‘sensitive material’ is discovered whilst undertaking earthworks or land disturbance that is not already expressly provided for by any resource consent or other statutory authority.⁴⁵ ‘Sensitive materials’ includes archaeological sites, human remains and kōiwi, and Māori cultural artefacts/taonga tūturu.⁴⁶

There are scheduled historic heritage places within the heritage area that are also covered by a designation. Most notable are the regional park designation and the four Watercare designations. This means that any specific heritage rules within a plan may not apply to works or development being undertaken, depending on the conditions of the designation.⁴⁷ Section 15 of the Act requires anyone making a recommendation or decision on a designation ‘to have particular regard to’ the purpose and objectives of the Act.

Under the Waitākere City District Plan the regional park designation ‘...*did not apply to the relocation, demolition or partial demolition of heritage items scheduled in the Plan*’. This meant that these activities were subject to the heritage rules in the district plan, and required a resource consent. All other works undertaken for the purposes of the designation were subject to the designation, and may or may not have required an outline plan of works.

⁴² District, regional or unitary plan

⁴³ This may include scheduled and non-scheduled historic heritage places.

⁴⁴ There are currently no Sites and Places of Significance to Mana Whenua within the heritage area.

⁴⁵ These rules require the works to be stopped immediately, the area secured, relevant authorities and parties to be informed and the site to be inspected by relevant authority.

⁴⁶ Taonga tūturu means *an object that; (a) relates to Māori culture, or society; and (b) was, or appears to have been: (i) manufactured or modified in New Zealand by Māori; or (ii) brought into New Zealand by Māori; or (iii) used by Māori; and (c) is more than 50 years old.* Protected Objects Act 1975, section 2(1).

⁴⁷ This only applies to district plan rules such as those in the Auckland Unitary Plan Historic Heritage Overlay.

Under the Auckland Unitary Plan the relocation, demolition or partial demolition of a scheduled historic heritage place within the regional park designation⁴⁸ are controlled by the designation and are therefore not subject to the Historic Heritage Overlay rules.

Any works carried out for the purpose of the designation must be in accordance with the Regional Parks Management Plan (2010), and most works that involve a scheduled historic heritage place require an outline plan of works. An outline plan of works is the method used to assess the effects of the proposed works, including effects on the historic heritage values.

Scheduled historic heritage places also fall within other designations (such as the various Watercare designations for water supply). There are four Watercare designations that include a scheduled historic heritage place within their boundaries. Each of these designations contain conditions about these scheduled heritage places. These conditions are the same in both the Waitākere City District Plan and the Auckland Unitary Plan. See Map 21 in Section 8: Water catchment and supply topic for the location of all Watercare designations in the heritage area.



Huia Filter Station is a scheduled Historic Heritage Place (ID 00077) and is also covered by a Watercare designation. (Source: DPA Architects)

Number of scheduled historic heritage places

At the time of the 2013 Monitoring Report the relevant district and regional plans⁴⁹ identified 117 entries in a heritage schedule.⁵⁰

⁴⁸ Designation 418

All the places included in these heritage schedules have been included in the Auckland Unitary Plan Historic Heritage Overlay schedule.⁵¹ However some individual schedule entries were merged together in the Auckland Unitary Plan to create a single schedule entry. This was to reflect a holistic management approach for heritage places, rather than as a collection of individual sites, features and buildings. This means that the total number of entries reported in the 2013 Monitoring report is not directly comparable to the number included in the Auckland Unitary Plan.

The Auckland Unitary Plan Historic Heritage schedule currently contains 114 entries that are located within the heritage area.⁵² It should be noted that in some cases there are multiple entries for the same historic heritage place e.g. the various sections of the Piha tramway.

There are three scheduled historic heritage places that are just outside the coastal boundary of the heritage area. These are not included in the 114 schedule entries. One of these places is Lion Rock where war memorial plaques are located. While strictly speaking they are not within the heritage area, Lion Rock in particular is an intrinsic part of the landscape associated with the heritage area.

Of the 114 schedule entries in the Auckland Unitary Plan Historic Heritage schedule, four places were not previously included in a heritage schedule. These are:

- ID 02481 Tara Orchard, including packing shed and homestead (former)
- ID 02519 Karangahape Pa R11_381 and R11_2096
- ID 02651 Piha Mill Site Q11_532
- ID 02652 Piha RDF (Radio Direction Finder) radar station site.



Piha RDF (Radio Direction Finder) radar station site, schedule ID 02652.

⁴⁹ Auckland Council District Plan - Operative Waitākere Section 2003 and Operative Rodney Section 2011, and the Auckland Council Regional Plan: Coastal

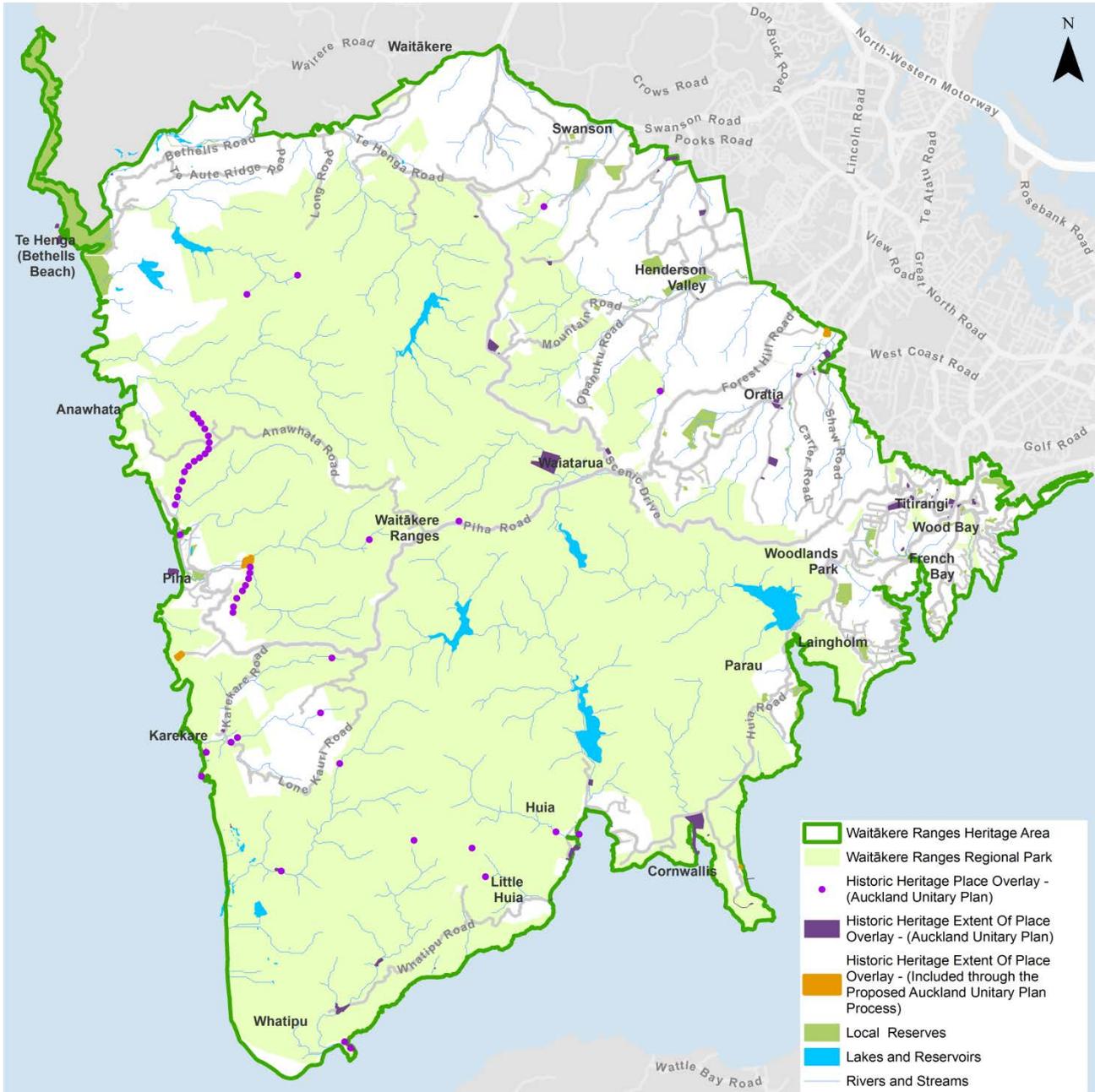
⁵⁰ Number based on 2013 Monitoring Report figures

⁵¹ Auckland Unitary Plan (Operative in part): Schedule 14 Historic Heritage Schedule

⁵² Number as of 30 September 2017

Map 19 below shows the location of the historic heritage places scheduled in the Auckland Unitary Plan (Operative in Part).

Map 19: Location of scheduled Historic Heritage Places in the Auckland Unitary Plan (Operative in Part)



New Zealand Heritage List / Rarangi Korero

Since the 2013 Monitoring Report one new place, the Brian Brake House, has been added to the Heritage New Zealand List/Rarangi Korero. This was added in 2014. The Brian Brake House is included in the Auckland Unitary Plan Historic Heritage Schedule.

Resource consents and outline plans of works related to scheduled historic heritage places

From June 2012 to August 2017 there were 17 land use resource consents granted for sites that contained a scheduled historic heritage place at the time the consent application was lodged.⁵³ Of these, six consents specifically triggered a heritage rule. Of these, three related to scheduled archaeological sites and the resource consents included conditions to manage the effects of development on the archaeological sites.

The remaining three resource consents related to scheduled heritage buildings. One was for alterations and additions to Lopdell House. The remaining two consents related to one building.⁵⁴ The first of these two consents was for alterations and additions to the building. However, once these works were underway the building was found to be structurally unsound and another consent was granted to demolish it. As of 14 August 2017 this building had not been demolished. It will not be removed from the Auckland Unitary Plan Historic Heritage Schedule until it is confirmed the building has been demolished.

For designations within the heritage area there were nine outline plans of works, or waivers for outline plans of works accepted, that had a scheduled historic heritage place on the site at the time the application was lodged.⁵⁵ For six of these, the works did not relate to the scheduled historic heritage place. The remaining three stated that the works would not impact on or have adverse effects on the scheduled historic heritage.

These statistics for scheduled historic heritage places indicate that there were not many resource consents granted or outline plans of works accepted since the 2013 Monitoring Report. However it does not examine the effect these resource consents or outline plans of work have had on the heritage values of the place. Nor do these statistics address the effect of resource consents or outline plans of work on historic heritage that is not scheduled. Therefore there is insufficient information to conclude whether historic heritage within the heritage area is being protected, restored or enhanced.

This analysis of the resource consent records was limited to the resource consent information available. It was initially based on brief descriptions of what the consent entailed. If it appeared to relate to a heritage rule analysis of the consent decision was undertaken to confirm if the consent related to one of these rules. Depending on the brief description, there is a risk that not all relevant consents were identified.

Auckland Council's Heritage Unit is currently developing a methodology for data collection and analysis of resource consents for scheduled historic heritage places across Auckland. This will not monitor the implementation of resource consents, such as whether conditions of the consent are being implemented or are achieving the intended outcome. However it

⁵³ Figures based on data generated using property identification numbers to filter the council's resource consent records. The accuracy of these results may be affected if property identification numbers changed during the last five years (e.g. subdivision) or if there are any inaccuracies in the mapping of scheduled historic heritage places.

⁵⁴ Auckland Unitary Plan (OP) Historic Heritage schedule ID 00080, 'Residence' at 12 Paturoa Road, Titirangi.

⁵⁵ Note that sites can be very large, especially in the regional park and works may not actually be in proximity to the scheduled historic heritage place.

will provide useful information for the next state of the environment report, such as the identification of which heritage rule is being triggered.

7.5 Public feedback

One of the historic heritage themes of the feedback received at the public meeting held on 15 June 2017⁵⁶, was the council's role in achieving the objectives of the Act, in particular how it manages its own assets e.g. the regional park, the road reserve, and heritage buildings and structures.⁵⁷

Specific matters of concern raised by the public include:

- the council has allowed a concession business to establish on an archaeological site at the Piha RDF Radar Station
- toilets and other parks or road infrastructure are being located in inappropriate places
- council controlled organisations are not maintaining their scheduled buildings e.g. Nihotupu Filter station.

7.6 Suggestions for the future

7.6.1 Archaeological and built heritage surveys

The work undertaken from 2013 to 2017 by the council has made good progress towards defining the state of historic heritage in the heritage area. However, the work required has not yet been fully completed. This is due to the extent of remedial work required since the inception of the heritage area monitoring programme (e.g. correcting poor quality data, inconsistent survey information and poorly maintained archives), and the funding and staff resource limitations available to undertake the work. It has become apparent from the work completed what is required to establish a heritage baseline. This baseline can provide the council with monitoring priorities to manage the ongoing condition of sites and to gauge the level of intervention that may be required to conserve site integrity. The recommended work includes:

Short term – required baseline (completion of stage 1):

- Completion of the priority survey and data capture (270 sites)⁵⁸ including monitoring forms that set priorities for monitoring, management, and enhancement.
- Identification of GIS extents for heritage sites in Auckland Council reserves.
- Completion of paperwork and digital database updates.

Ongoing development once baseline established:

⁵⁶ See section 1.8 of this report for more details on the public meeting.

⁵⁷ This included Auckland council- controlled organisations (CCOs) e.g. Watercare and Auckland Transport

⁵⁸ This total includes only the priority sites across the heritage area on public land.

- Initiation of Stage 2 (medium term implementation monitoring programme). This includes the ongoing review and monitoring of historic heritage items based on priority survey data or assigned risk level, with repeat monitoring based on two, five and 10 yearly cycles as appropriate.
- Production of heritage management/maintenance plans for public open space reserves in the heritage area. These would provide clear operational guidelines to protect or remediate individual heritage sites in public spaces that may be detrimentally affected by high recreational use.
- Production of management/maintenance plans for key scheduled buildings in Auckland Council ownership within the heritage area.
- Formulation of practical best-practice guidelines for owners of CHI listed heritage buildings within the heritage area.
- Prepare and implement a conservation assessment of the Piha Tramway that runs from Anawhata Stream in the north to Paratutai in the south.⁵⁹

Additional long-term objectives include:

- Initiation of Stage 3 (long term ongoing monitoring and management programmes). This includes survey and assessment of low priority interior and private property sites.
- The formulation of management programmes/initiatives to manage adverse effects on significant sites or associated groups of sites following monitoring outcomes. This may include the formulation of site-specific conservation plans, management of public access, stabilisation methods and/or rescue excavation of information.
- The development of strategies to increase public access and awareness of historic heritage sites in the heritage area through public education and on site interpretation.
- Identification of various heritage research projects and objectives to increase public awareness/education and/or aid management of specific sites, etc. This may include the formulation of heritage pamphlets, thematic studies, heritage trails, site interpretation and site enhancement (Waitākere Ranges Regional Parks Management Plan Implementation Strategy and Interpretation Guidelines).
- Implement recommendations for additional research for scheduled sites and assist Auckland Unitary Plan schedule assessment.

7.6.2 Collection and analysis of resource consents and outline plans of works data

For a meaningful and robust analysis of the effects of development on historic heritage within the heritage area, more appropriate data needs to be readily available. This may require an enhancement to the council's resource consent processing software.

The following improvements would be beneficial to future analysis:

- accurate identification of which resource consent applications 'trigger' a heritage rule for scheduled historic heritage places e.g. earthworks, demolition or destruction, modification etc.

⁵⁹ Waitākere Ranges Regional Parks Management Plan section 17.19

- accurate identification of which resource consents affect historic heritage that is not scheduled
- accurate identification and analysis of the type of conditions placed on resource consents and what outcome the conditions achieved e.g. restore or enhance the heritage feature, or mitigation of adverse effects on the heritage feature
- accurate identification of when accidental discovery protocols have been triggered for archaeological sites, human remains and kōiwi, and Māori cultural artefacts/taonga tūturu.

As indicated above, heritage maintenance/management plans for public spaces provide clear operational guidance. Because many scheduled historic heritage places are located within the regional park, the RPMP is essential to the management of these places. When the RPMP is reviewed consideration should be given to the effectiveness of the current historic and cultural heritage objectives and policies.

7.7 Funding implications of activities

The Waitākere Ranges Local Board has funded the 2015 Historic Heritage Data Collation, Review and Rationalisation Report, the 2016 built heritage survey and the research topics completed to date (2014-2017). From the 2014/2015 financial year to the 2016/2017 financial year \$139,509 was spent on these projects. See Appendix 1 for further details.

The primary additional cost for establishing the baseline data required to monitor the heritage of the heritage area has been the archaeological site survey, associated monitoring assessments and data upgrade. To date this work has been undertaken by the council's Heritage Unit. However, time restrictions to undertake the survey has limited progress with only 38 per cent of the 653 priority sites on public land completed to date.

The process of digitising upgraded site information and GIS site extents from Stage 1 fieldwork is ongoing and will be completed by the Heritage Unit.⁶⁰ Upgraded information will be updated on the national⁶¹ and regional⁶² heritage databases, to ensure appropriate dissemination of heritage information for archaeologists and Auckland Council staff. This ongoing work by the Heritage Unit requires ongoing funding and resources (and is contingent on the wider Heritage Unit work programme).

The timeframes for the initiation of medium to long-term monitoring programmes (Stages 2 and 3) are contingent on funding and the completion of Stage 1. It is envisaged that once the baseline data has been collected and set up, long-term monitoring requirements and management programmes would require ongoing funding.

⁶⁰ Undertaking survey of the low priority sites, primarily located on private land is not a priority at this point due to the associated consultation required.

⁶¹ New Zealand Archaeological Association (NZAA) ArchSite <http://www.archsite.org.nz/>

⁶² Auckland Council's Cultural Heritage Inventory (CHI) <https://chi.net.nz/>

Sub-topic: Scheduled trees

7.8 What is included in this topic

This topic relates to trees that are scheduled in the Auckland Unitary Plan through the Notable Tree Overlay. Individual and groups of trees have been included in the Notable Tree Overlay for their significant historic, botanical, or amenity values. Most of these scheduled trees were also included in the Auckland Council District Plan - Operative Waitākere Section 2003 (Waitākere City District Plan) schedule of heritage vegetation.⁶³

The 2013 Monitoring Report did not specifically include any monitoring or commentary on the state of scheduled trees. However comments received at a heritage area public meeting⁶⁴ and media coverage have shown that the removal of trees continues to be of concern for many people.

These scheduled notable trees contribute to the natural heritage values of the heritage area. They cannot be easily described as any one specific heritage feature as set out in section 7 of the Act. Rather they fit across the various heritage features depending on the values they are scheduled for. For example some trees will have historical or cultural associations or will be considered to be evidence of past human activities. Other trees will be part of prominent terrestrial indigenous ecosystems, or part of the wider landscape. Others play an important role in ensuring the built environment remains subservient to the natural and rural landscape.

As discussed in section 1.5.3 of this report, amendments to the RMA in 2013 changed how tree protection rules could be applied in a district plan. This meant that for urban environment allotments trees would need to be specifically included in a schedule or list to be protected, rather than through 'general tree protection' rules.⁶⁵ While significant parts of the heritage area do not meet the RMA definition of 'urban environment allotment', many of the more developed areas do e.g. Titirangi, Laingholm, Waima and Woodlands Park.

For the purposes of this report only the Auckland Unitary Plan Notable Tree Overlay or Waitākere City District Plan Heritage Vegetation is discussed. However it should be noted that there are other planning methods in the Auckland Unitary Plan that manage trees and/or vegetation clearance e.g. Significant Ecological Areas – Terrestrial Overlay, or Auckland-wide rules applying to Trees in roads (Chapter E17) or Trees in open space zones (Chapter E16). In particular the Significant Ecological Area Overlay covers significantly large parts of the heritage area.

7.9 Key findings

Relevant heritage features (section 7 of the Act): 2(a), (i), (j), (k)

⁶³ Heritage Appendix - Heritage Vegetation

⁶⁴ 15 June 2017

⁶⁵ RMA sections 76(4A) – 76(4D)

Summary – state of scheduled trees

- Since mid-2012 an additional 74 trees or groups of trees within the heritage area have specifically been recognised for their significant natural heritage value by being added to the schedule.
- There were only a small number of resource consents or outline plan of works granted that specifically triggered a scheduled tree rule in a district or regional plan.

Progress made towards achieving the objectives:

- There is insufficient information available to determine if progress is being made towards achieving the objectives of the Act in relation to scheduled trees (e.g. no information on the physical health of scheduled trees or the effects of unconsented development).

7.10 What we measure changes against

For this report, two indicators are used to ‘measure’ the ‘state’ of scheduled trees.

The first is the number of trees or groups of trees within the heritage area that are included within the Notable Tree Overlay in the Auckland Unitary Plan or the Heritage Vegetation appendix in the Waitākere City District Plan.⁶⁶

The second indicator is the number of consented developments on sites where scheduled trees are located, in particular the number of consents granted to cut down/remove a scheduled tree.

For information relating to vegetation removal see Section 5: Development and consent activity topic (i.e. consents relating to trees and other vegetation that are not a scheduled Notable Tree).

7.11 Changes between 2013 and 2018**Changes to the district planning framework for scheduled notable trees 2013 to 2018**

The 2013 Monitoring Report did not include any commentary on trees that were scheduled through the Waitākere City District Plan.

As a baseline to measure changes since the 2013 Monitoring Report, there were 38 trees or groups of trees within the heritage area that were included in the Waitākere City District Plan Heritage Vegetation Appendix in mid-2012.⁶⁷ Resource consent was required for

⁶⁶ This number is based on line entries within the schedule rather than the number of actual trees.

⁶⁷ This number is based on line entries within the schedule rather than the number of actual trees. There were no trees within the heritage area that were scheduled in the Rodney District Plan.

works within the dripline⁶⁸ or the removal of these tree(s).⁶⁹ Resource consent was also required for pruning these trees if the proposed activity did not meet the permitted standards.⁷⁰

In 2013, an additional 62 trees or groups of trees within the heritage area were added to the Waitākere City District Plan Heritage Vegetation Appendix through Plan Change 41.⁷¹ This was in response to the 2013 amendments to the RMA which removed general tree protection rules for 'urban allotments'.⁷²

All trees that were included in the Waitākere City District Plan Heritage Vegetation Appendix (including those added through Plan Change 41) were included in the Auckland Unitary Plan schedule of Notable Trees (Schedule 10). However some schedule entries from the Waitākere City District Plan were split into more than one schedule entry in the Auckland Unitary Plan. This means that the number of schedule entries is not directly comparable between the two plans.

In addition to all the trees carried over from the Waitākere City District Plan, 12 new trees or groups of trees were added to the Auckland Unitary Plan through the unitary plan hearings process. A total of 114 trees or groups of trees within the heritage area are now included in the Auckland Unitary Plan schedule of Notable Trees.⁷³

Therefore since the 2013 Monitoring Report an additional 74 trees or groups of trees within the heritage area have been specifically recognised for their significant natural heritage value.

Of the 114 schedule entries in the Auckland Unitary Plan, 69 include kauri, pōhutukawa and/or rātā trees. As discussed in the Terrestrial and aquatic ecosystems topic, kauri dieback disease is a significant risk to kauri trees within the heritage area. Myrtle rust is also an emerging threat for trees such as pōhutukawa and rātā. In the future both diseases could have a significant impact on the health and viability of scheduled notable trees within the heritage area.

The above statistics assume that there are no errors in the Auckland Unitary Plan Notable Tree schedule and mapping. It should be noted that the council is currently undertaking a full review of the Notable Tree schedule to ensure the information is accurate and up-to-date. This includes checking that Notable Trees are mapped on the correct location. This review will lead to a plan change in 2018 to amend the schedule and mapping where required.

⁶⁸ Limited discretionary activity resource consent

⁶⁹ Non-complying activity resource consent

⁷⁰ Limited discretionary activity resource consent

⁷¹ Heritage Appendix of the Waitākere City District Plan. This number is based on line entries within the schedule rather than the number of actual trees.

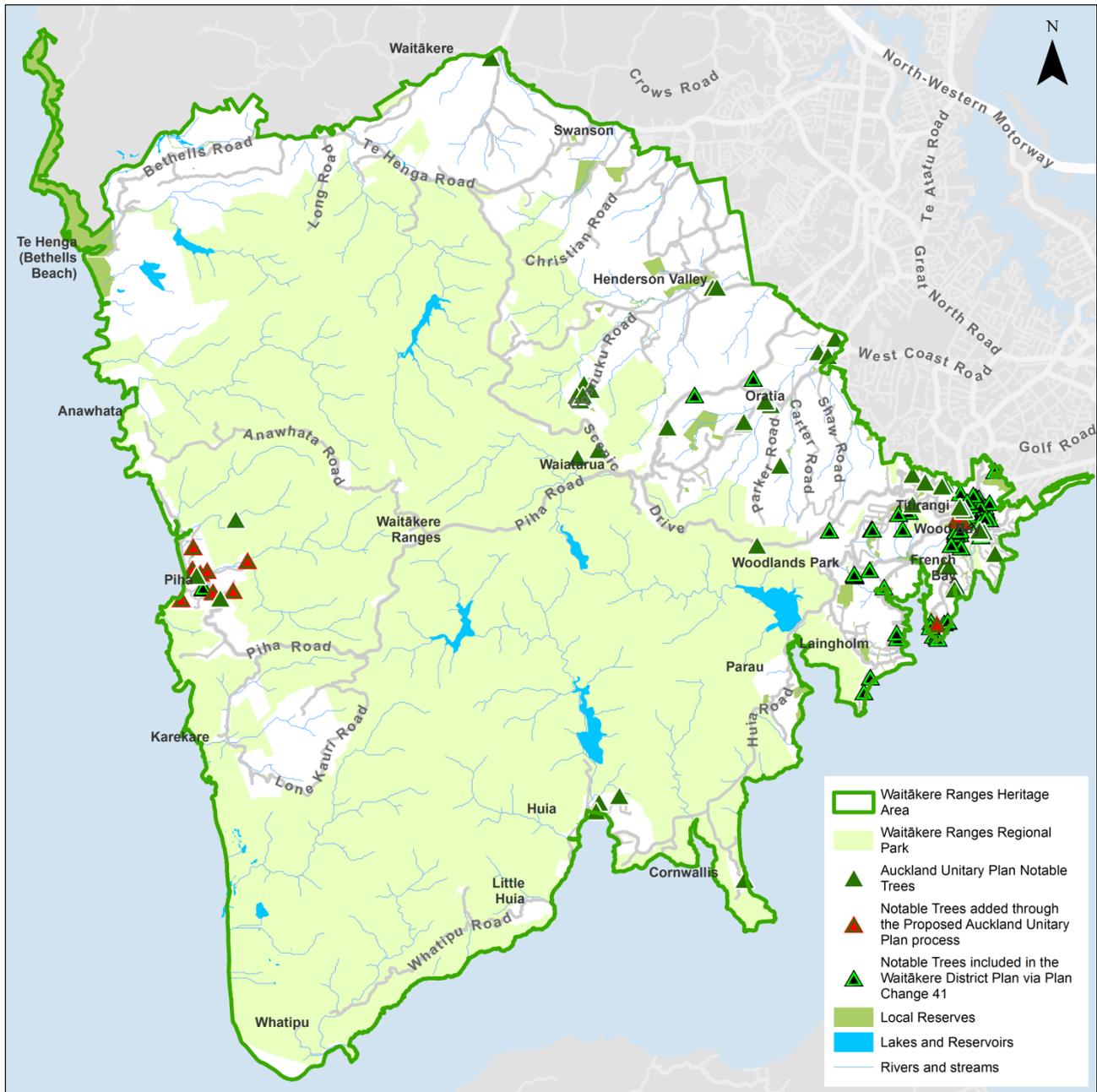
⁷² See section 1.5.3 of this report for additional information on the RMA amendments

⁷³ As of 30 September 2017.



Pōhutukawa on the road reserve outside 8 Garden Rd, Piha was added to the Notable Trees schedule through the Proposed Auckland Unitary Plan process (ID 2129).

Map 20: Location of scheduled Notable Trees (Auckland Unitary Plan), showing which were added through Plan Change 41, and which were added through Proposed Auckland Unitary Plan process.



Resource consents and outline plans of works related to scheduled notable trees

Under the Waitākere City District Plan removal of a scheduled tree was subject to a non-complying resource consent. Works within the dripline of a scheduled tree required a limited discretionary resource consent. In the Auckland Unitary Plan the removal of a scheduled tree is subject to a discretionary resource consent. Works within the dripline of a scheduled tree that does not meet the permitted standards requires a restricted discretionary resource consent.

Between June 2012 to August 2017, 28 land use or tree resource consents have been granted/approved where the site contains a scheduled tree(s).⁷⁴ Further investigation of these resource consents showed that only five of these required resource consent for a rule directly relating to the scheduled tree. Of these, three related to work within the dripline of the tree(s) and the remaining two were for tree removal.

The resource consents for works within the dripline of the tree(s) generally contained conditions to protect the health of the tree. For the two consents to remove a scheduled tree, the poor health of the tree and safety risks were the reasons for granting the consent. No resource consent applications were declined that related to tree removal, works within the dripline, or trimming/pruning.

There were 27 outline plans of works, or waivers for outline plans of works from June 2012 to August 2017 across the heritage area. Of these, two were for sites that had a scheduled heritage tree(s) on the site at the time the application was lodged.⁷⁵ However neither of these directly related to the scheduled tree.

These statistics for scheduled notable trees indicate that since the 2013 Monitoring Report, there were not many resource consents granted and no outline plans of works accepted, that directly related to a scheduled tree. However, this information is insufficient to determine the progress towards achieving the objectives of the Act in relation to scheduled notable trees. For example, this does not measure the physical health of the trees. Nor does it capture the effect of any unconsented works on the trees, such as illegal removal (i.e. without consent granted).

7.12 Suggestions for the future

To determine the state of scheduled notable trees and the progress towards achieving the objectives of the Act, more information is required. Like historic heritage, more readily available resource consent/outline plan of works data would be beneficial to future analysis. This may require similar enhancements to the council's resource consent processing software, such as:

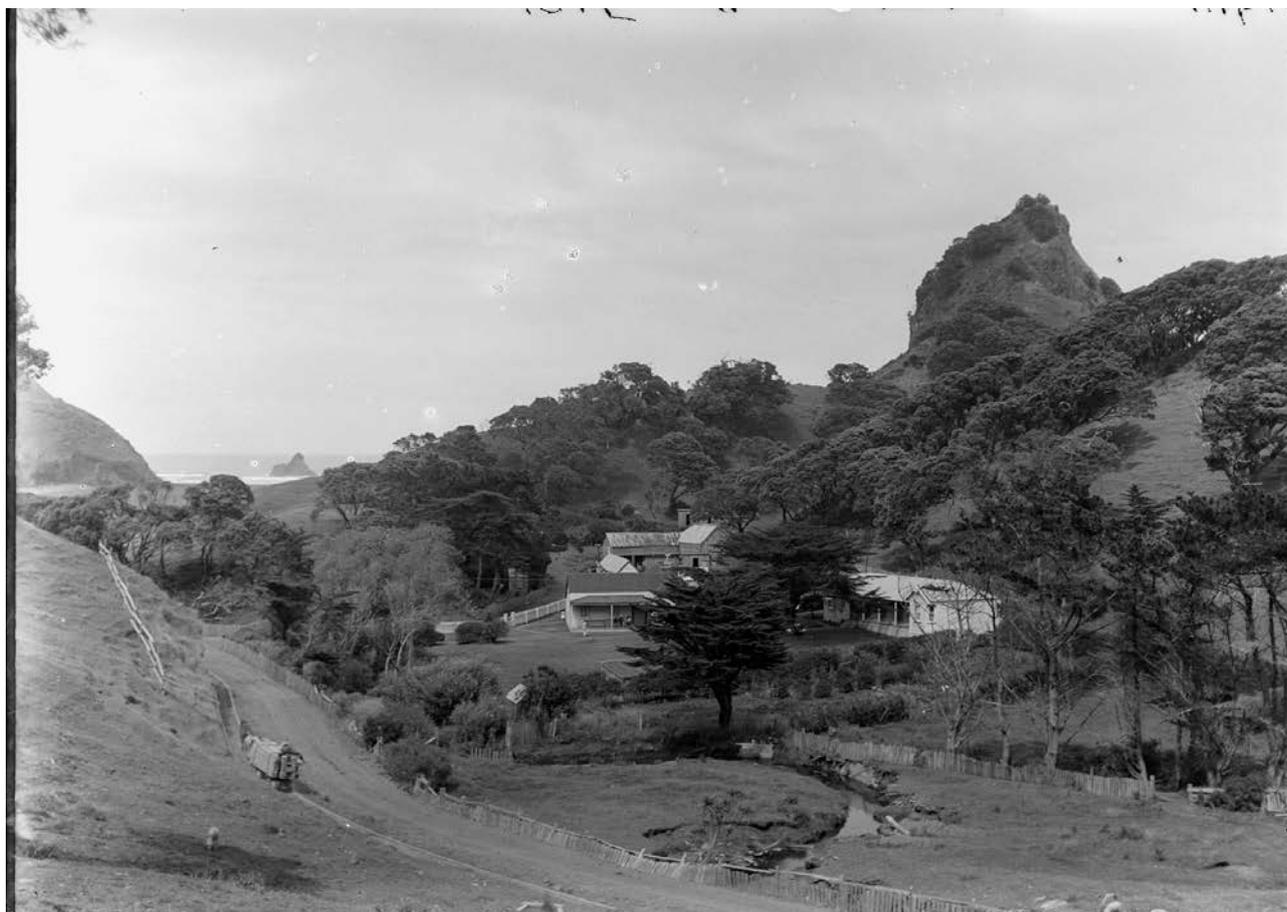
- accurate identification of which resource consents 'trigger' a notable tree rule e.g. tree removal, works within the dripline, and trimming and pruning
- accurate identification and analysis of the type of conditions placed on resource consents.

⁷⁴ This data was generated and analysed in the same way as the historic heritage section. This means that the accuracy of these results may be affected depending on the brief description of the resource consent/outline plan of works or if the property identification numbers changed.

⁷⁵ Note that sites can be very large, especially in the regional park and works may not actually be in proximity to the scheduled historic heritage place.

Monitoring the health and viability of scheduled trees would also contribute to future analysis, especially due to the significant risk posed by kauri dieback and myrtle rust diseases.

While including trees in the Notable Tree schedule is the primary method for managing and protecting significant trees, it is not the only method available in the Auckland Unitary Plan. Trees in roads and open space zones also significantly contribute to the heritage features, regardless of whether they are included in the Notable Tree schedule. Future consideration should be given to how these can be monitored in the future.



A view of Karekare showing the beach, Farley's Boarding House and the timber tram from Piha. (Source: Sir George Grey Special Collections, Auckland Libraries, 4-1464-1)

8 Topic: Water catchment and supply

8.1 What is included in this topic

The Preamble to the Waitākere Ranges Heritage Area Act 2008 (the Act) recognises that the Waitākere Ranges are a water catchment and location for a series of storage and supply systems that have sustained Auckland's water supply since 1902. The water catchment and supply system and its operation, maintenance, and development is also identified as a heritage feature (refer Appendix 3 s7(n)) and an objective of the Act is to protect the features of the area that relate to its water catchment and supply functions (refer to Appendix 3 s8(k) of the Act).

The 2013 Monitoring Report did not include a section on water catchment and supply although the Ecosystems and Ecosystem Service section (pg. 50, 51) provided some information on this topic including:

- the results of water quality monitoring upstream and downstream of reservoirs⁷⁶
- discussion on the recreational use of the dam catchment areas including tracks such as Exhibition Drive and the two small gauge trains that ran public excursions
- the requirement for visitors to stay on tracks within the water catchment area and the prohibition of people and dogs within 50 meters of the dams and contact with water in the dams
- the discretionary activity requirement for activities in the water catchment areas of the regional park to obtain Watercare's approval.

This section provides additional and updated information on the water catchment and supply system of the heritage area, including:

- the importance of the Waitākere Ranges water sources in the context of the greater metropolitan water supply system
- the history of the water supply catchments and how the Waitākere Ranges water catchment and supply system is a key driver for the high quality of the natural environment present today
- the activities and monitoring undertaken to enhance the environment, avoid the spread of kauri dieback disease and achieve the objectives of the Act, associated with the water catchment and operation of the water supply system
- the future development of the Waitākere Ranges water supply system.

⁷⁶ In this report reference to 'dam' refers to the water retaining structure and reference to 'reservoir' refers to the water body.



Upper Nihotupu Reservoir.

8.2 Key findings

Relevant heritage features (section 7 of the Act): 2(n)

Summary – state of water catchment and supply

- Establishing the Waitākere Ranges as a water catchment for Auckland’s water supply in the early 1900s was fundamental in allowing the natural regeneration of the Waitākere Ranges into forest and for the later incorporation of the reservoirs and catchments into the Waitākere Ranges Regional Park.
- The reservoirs are iconic features of the heritage area and contribute to its scenic beauty and the catchments within the regional park have high ecosystem and recreational values.
- The water catchment and supply system continues to sustain Auckland’s water supply and currently provides 19 per cent of Auckland’s drinking water.
- Many of the dam structures, water supply network and associated buildings have significant historic heritage values.
- Watercare ensures that treated water meets the required drinking water standards and is facing challenges from catchment and climate changes that affect water quality.
- The prevalence and influence of cyanobacteria and algae in reservoirs is increasing and water treatment facilities will need to be able to meet the future foreseeable water

treatment challenges and the regulatory requirements that these present.

- Both the Huia and Waitākere Water Treatment Plants are meeting the end of their operational life and are planned to be replaced to meet increasingly challenging water treatment requirements and the water supply needs of Auckland's rapidly growing population. The Huia Water Treatment Plant will be replaced within the next 5 years and the Waitākere Water Treatment Plant is likely to be replaced within the next 10 to 15 years.
- A number of monitored programmes are undertaken by Watercare to ensure that the dams do not result in the loss of downstream water quality or ecological values.
- A weed and pest management plan and programmes for land owned or leased by Watercare is being developed with council.
- Kauri dieback disease is located within Watercare's catchments and Watercare is complying with the present protocols agreed with council to prevent the spread of the disease within the heritage area or to the Hunua Ranges from Watercare's activities.

Progress made towards achieving the objectives:

- The objective to protect the water catchment and supply functions of the heritage area is currently being achieved. The Waitākere Ranges continue to be an important part of the public water catchment and supply system and Watercare is managing the water resources and the associated catchments to produce high quality water for the people of Auckland. However, replacement of the aged Huia and Waitākere Water Treatment Plants is considered necessary if the objective of supplying water from the heritage area to serve the people of Auckland is continued to be met.
- Active monitoring and management is being undertaken to protect the ecological values of streams downstream of dams.

8.3 What we measure changes against

In measuring changes for the next State of the Waitākere Ranges Heritage Area 2023 report the indicators used in this section will provide a baseline to measure changes to:

- the catchment, water supply infrastructure or in technology to improve the supply and quality of water
- the quality of water in reservoirs
- the quality of treated water
- the ecology and water quality of streams
- weed and animal pest management on Watercare leased and owned land
- protocols implemented, and any enhanced protection measures undertaken to prevent the further spread of kauri dieback disease within the heritage area or to the Hunua Ranges.

Auckland's drinking water supply

Auckland's growth and wellbeing relies on the supply of safe drinking water to its residents and visitors. The Waitākere Ranges water supply catchment and reservoirs are a vital part

of Auckland's drinking water system. The Upper Huia, Lower Huia, Upper Nihotupu, Lower Nihotupu and Waitākere Reservoirs together can supply up to 25 per cent of Auckland's drinking water demand and typically supply approximately 19 per cent of Auckland's demand.

The Upper Huia, Lower Huia, Upper Nihotupu, Lower Nihotupu Reservoirs supply water to the Huia water treatment plant. The Waitākere Reservoir supplies the Waitākere water treatment plant. Both of these facilities treat water from Waitākere Ranges reservoirs to produce safe 'A' graded drinking water that meets the requirements of Drinking Water Standards for New Zealand 2005 (Revised 2008).

A small water treatment plant was developed adjacent to the Lower Huia reservoir pump station to supply the Huia village township. This treats water from the Upper and Lower Huia dams to supply this community.

Watercare and its predecessors have placed a great deal of importance on the management of the water resources and the associated catchments to produce high quality water for the people of Auckland.

History of water catchment and supply

During the late 1800s ground water sources in the Auckland Domain, Lake Pupuke, Western Springs and Onehunga were used to supply residents.

Water from the Waitākere Ranges was first supplied to the city in 1902. Prior to this time extensive areas within the Waitākere Ranges were commercially forested and some areas converted to farmland. Auckland City Council purchased catchment land during the early 1900s following recommendations to develop water supply dams in these high rainfall areas. The construction of the dams and need to protect the surrounding water catchment was the initial driver for allowing regeneration of land leading to the present day forested catchments of the heritage area.

Five large dams were constructed to create drinking water supply reservoirs, each dam being named after the area or the stream that feeds it. Today the reservoirs are iconic features of the heritage area and add to its scenic beauty and the catchments within the regional park are highly valued areas for bush walking.



Waitākere Dam and Reservoir.

The dams are also recognised as being historically significant as their various forms of construction demonstrate the history of twentieth century engineering in dam building. Table 34 provides the history of the dam construction and water supply development in the Waitākere Ranges.

Table 34: History of dam construction and water supply development

Date constructed	Name of dam/reservoir	Construction material	Height (metres)	Water storage volume (000s m ³)
1900 -1902	Nihotupu Falls Dam	Wooden	39.6m	6,422
1900- 1902	Quinns Stream Dam	Wooden (settling tank at Titirangi and water discharged to Western Springs on February 19 1902)		

1906	Waitākere Dam	Wooden (collapsed during the construction of the concrete dam, but was able to provide the initial supply from Waitākeres to Auckland)		
1906 – 1910	Waitākere Dam	Stage 1 concrete (among the first large scale concrete dams in New Zealand)	25.3m	1,761
1926 – 1927	Waitākere Saddle Dam	Stage 2 concrete		
1926 - 1927		Earth-fill with concrete core		
1915 – 1923	Upper Nihotupu Dam	Concrete	50.3m	2,202
1919 - 1921	Nihotupu Auxiliary Dam	Concrete buttress dam		
1926 – 1929	Upper Huia Dam	Concrete dam	36.6m	2,225
1944	Huia Stream	Concrete weir		
1943 – 1944	Lower Nihotupu Stream	Concrete weir		
1945 - 1948	Lower Nihotupu Dam	Earth-fill dam (first scientifically designed earthfill dam in New Zealand)	24.7m	4,605
1967 - 1971	Lower Huia Dam	Earth-fill dam	39.6m	6,422

The Nihotupu Auxiliary dam was retired in 1985 and the reservoir basin seeded to allow regeneration of the site. In 1991 the council took over responsibility for the heritage dam structure.

Tramways, piping, tunnels, filter stations and other structures were built to provide access to the water catchment, to treat water and to deliver it through a gravitational supply to Auckland. In some cases the original water transmission infrastructure is still in use today and is some of the oldest functioning water supply infrastructure in Auckland.

Exhibition Drive was originally developed to form the initial weirs at Nihotupu Falls and for the water supply system connecting the Upper Nihotupu Reservoir to the Nihotupu Filter Station and later the Huia water treatment plant (built in 1928). Exhibition Drive was constructed by manual labour and was officially opened in January 1914. Today Exhibition Drive provides access to part of the Nihotupu water main and the combined tunnels and aqueducts for maintenance and upgrade purposes. Watercare enable its recreational use and it is also an extremely popular walking track.

Narrow gauge tramlines were used to construct the Upper Nihotupu and Waitākere Dams and portions of these two narrow gauge tramlines remain. Public sightseeing services were operated along the tramlines until 2014 but were discontinued due to significant geotechnical instability and regular rock falls. The tramlines have been retained for watermain repair and maintenance purposes only.



Nihotupu tramline and pipe route during construction of the Upper Nihotupu Dam, with locomotive used to haul construction material to the dam site (Source: Sir George Grey Special Collections, Auckland Libraries, 1-W1784).

Table 35 shows Watercare buildings within the heritage area that are also scheduled historic heritage places

Table 35: Heritage water treatment buildings

Heritage Building	Current use
Huia Water Treatment Plant (Huia Filter Station)	The Huia Filter Station building is part of the Huia Water Treatment Plant site producing up to 126 mega-litres a day (MLD)
Waitākere Water Treatment Plant (Waitākere Filter Station)	The Waitākere Filter Station building is part of the Waitākere Water Treatment Plant site producing up to 20 MLD
Nihotupu Filter Station	The Nihotupu Filter Station has been unused since the 1990s and is currently boarded up.

Water treatment and supply

The five dams in the Waitākere Ranges continue to make an important contribution to Auckland's fresh water supply.

Treated drinking water from the Huia and Waitākere Water Treatment Plants typically accounts for approximately 19 per cent of Auckland's present drinking water supply and is distributed to residents of west and north Auckland.

Both the Huia and Waitākere water treatment plants are approaching 100 years of age and have been upgraded several times to ensure compliance with Drinking Water Standards for New Zealand and other statutory obligations. Watercare plan to replace both of these treatment plants as they are reaching the end of their operational life, face new water treatment challenges (such as treating water with increasing levels of cyanobacteria) and need to function at maximum production capacity to optimise the use of available water.

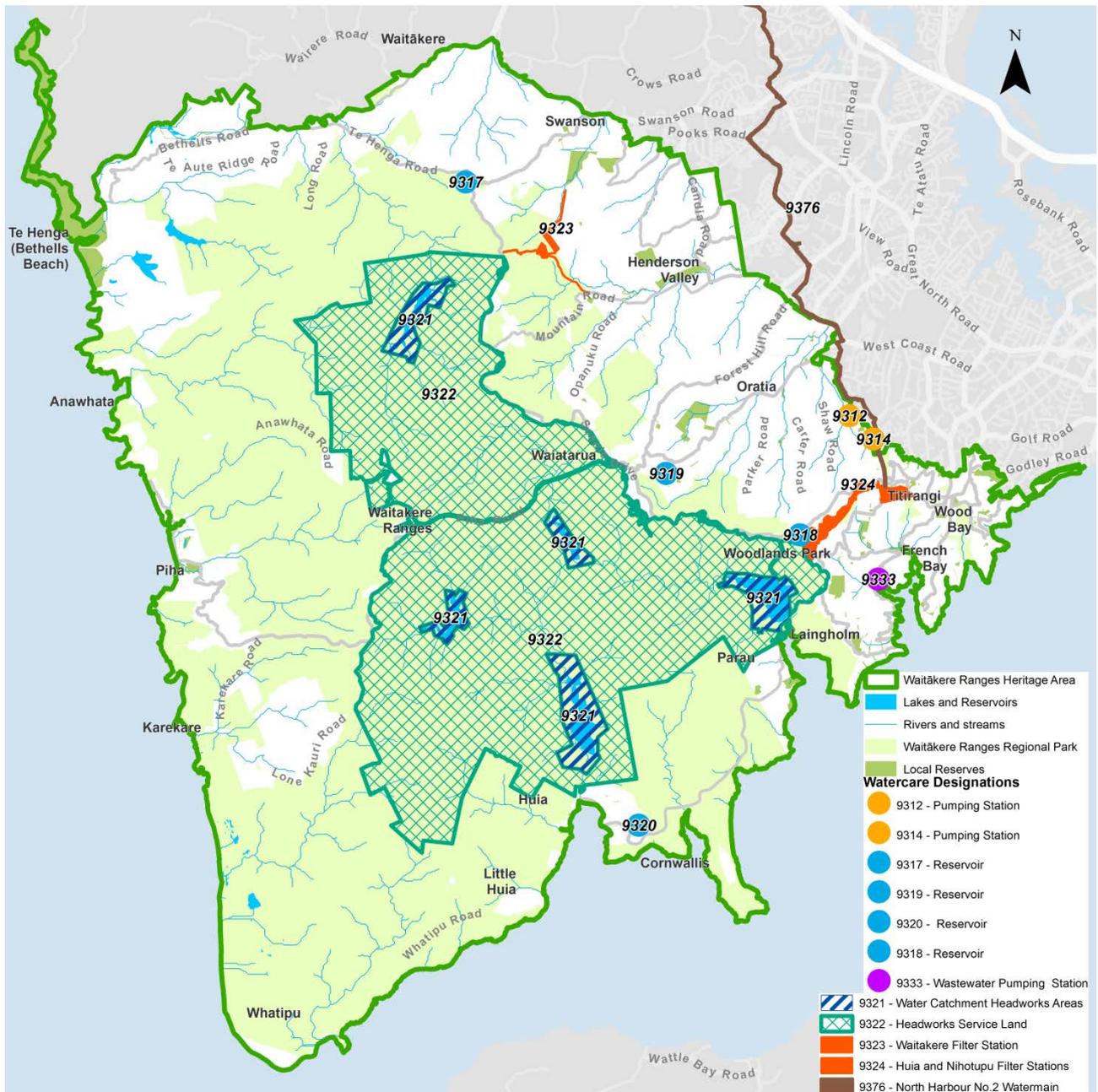


Image on left: Huia water treatment plant. Image on right: Waitākere water treatment plant.

Watercare designations

The catchments and reservoirs were incorporated into the Waitākere Ranges regional park under Regional Catchment Parkland (Local Government Act) on 1 July 1992 with their ongoing catchment and supply function protected by designations. Approximately 6,800 hectares of the regional park is designated for water catchment purposes. These designations are shown in Map 21 below.

Map 21: Location of Watercare designations within the heritage area



Eleven designations are held by Watercare for the provision of water and wastewater services. These designations have been established over time as the water supply system has developed to meet the needs of a growing city. A summary of water supply related designations held by Watercare in the Waitākere Ranges is contained in Appendix 17.

8.3.1 Stream ecology

The natural water flows of streams are stopped by dam structures that capture and hold the water for water supply purposes. The resulting lack of downstream water flows can have catastrophic effects to stream ecology, particularly migratory fish, eels and other stream life. To ensure that the ecology of streams within the water supply catchments is maintained a number of managed interventions are undertaken as discussed below.

Compensation flow release

Compensation flow release involves water being released from a dam at a rate that is sufficient to maintain downstream water flows and the ecological values of streams (refer to Table 36).

At the Upper Huia, Lower Nihotupu and Waitākere reservoirs this involves:

- water being released continuously at a set rate, regardless of operations or storage needs
- flow rates being changed seasonally to benefit the downstream environment
- the flow rate being constantly monitored.

Table 36: Compensation flow release rates

Total system storage (%)	Flow at toe of the dam in litres per second, inclusive of water discharged by discharge valves and water discharged via the spillway
Greater than 79	90
Less than or equal to 79 and greater than 59	80
Less than or equal to 59	30

Compensation flows are not released from the Lower Nihotupu and Lower Huia reservoirs as they are situated close to the sea and the downstream water courses experience tidal influences that enable natural ecological function of the stream.



Waitākere Reservoir compensation flow Installation (Watercare Services Limited).

Stream monitoring

The impact of dams on the downstream environment is measured by Watercare through its Environmental Source Monitoring programme. Under this programme the three catchments that supply the Waitākere Ranges reservoirs are assessed (Huia stream, Nihotupu stream and the Waitākere River) through discrete and continuous sampling at pre-determined locations for each of the three sources. One control site upstream of the dam is used as a benchmark and multiple locations downstream of the dam are measured against this control benchmark.

The sites chosen for monitoring are considered the optimal sites to measure stream health and the following factors are measured:

- water temperature
- suspended solids
- pH
- conductivity (at 25 degrees Celsius)
- turbidity NTU (Nephelometric Turbidity Units)
- black disc transparency
- dissolved oxygen
- dissolved reactive phosphorus
- total phosphorus

- ammonia nitrogen
- nitrate nitrogen
- periphyton.

The presence and abundance of macroinvertebrates (the insects, bugs and worms living in a stream) is a common way to assess water quality as certain species are sensitive to various pollutants and environmental stressors. Watercare undertake macroinvertebrate sampling to produce a Macroinvertebrate Community Index (MCI) and undertaken yearly monitoring to determine the ecological quality of streams.

Monitoring results have shown no significant downstream effects on water quality as a result of the dams. The water quality at the sites monitored is very high, and In the Auckland Council State of the Environment Monitoring: River Water Quality Annual Report 2013 (Auckland Council technical report, 2014) the Cascade Stream was rated as having excellent water quality. Watercare's 2015/2016 overall monitoring results were comparable with the council's regional reference site at Cascade Stream.

Migratory fish – trap and haul (fish/eel capture and release)

Native migratory fish and native freshwater eels make their way down streams to the sea to breed and adults return to freshwater streams. Dam structures in a stream prevent the natural migration in both directions (i.e. adult eels migrating to the sea or juveniles returning to their native water body). To ensure that the breeding cycles of native fish and migratory eels can continue intervention is required.

To ensure the continued breeding cycles of native fish and eels Watercare have a special permit granted by the Ministry for Primary Industries to undertake a 'trap and haul' programme that involves:

- **Trapping;** where a ramp with a constant flow of water with a trap at the end captures migrating juvenile native fish (whitebait) and eel (elvers) as they try to make their way upstream from the sea. Trapping is undertaken from August to March with traps being checked at least weekly and the trapped fish and elvers being transported to a safe release point within the reservoir.



Image on left: Waitākere Dam trap location (Waitākere compensation flow release point). **Image on right:** Waitākere Dam trap (fish path and trap).



Image on left: Juvenile Galaxias sp. trapped at the Waitākere Dam Fish trap. **Image on right:** Elver trapped at the Waite Dam Fish trap.

- **Hauling**; this involves the capture of adult eels to enable their transport and release so they can make their way to the sea and to a location near Tonga where they breed. Adult eels are captured using non-baited fyke nets in strategic positions. Non-migrating eels are released back into the reservoir and migratory eels are released into a stream where they can make their way to the sea.



Image on left: Adult eels captured in nets at the Waitākere Dam Fyke net. **Image on right:** Adult migratory eels being released downstream of the Lower Huia Dam.

Techniques for trapping and hauling fish species have evolved based on experience. This has resulted in increases in catch numbers over the five-year period. Juvenile species are released into protected catchments, and reservoirs, where no fishing is permitted. This is particularly important for species such as the Longfin eel *Anguilla dieffenbachii*, which is classified as "At Risk: Declining" by the Department of Conservation.

The results of the trap and haul programme are provided to the Ministry for Primary Industries in August each year. This programme has been very successful and over the past five years Watercare has trapped and hauled approximately:

- 9,553 juvenile *Galaxias sp*
- 5,731 elvers
- 38 migratory adult eels Longfin and Shortfin species.

Environmental flushing flow programme

Heavy rainfall washes out the accumulated debris in streams and contributes to biodiversity by 'flushing-out' dominating flora and fauna that can be 'overtaking' and inhibiting less competitive organisms.

As dams interrupt this natural flushing process Watercare implement an environmental flushing programme that is designed to simulate a natural flood event between December and March when the dams are not over-spilling water. This involves leaving discharge valves at 15 per cent open for three hours to discharge water into streams that are not situated close to the sea.



Waitākere Reservoir Free Discharge Valve in operation (WSL).

8.3.2 Water quality

Reservoir water quality

The management of water quality for water supply purposes is subject to Drinking Water Standards for New Zealand 2015.

A number of factors are measured to confirm the quality of the water stored in the Waitākere Ranges Reservoirs, these include pH, metals, total organic carbon, temperature, dissolved oxygen, taste and odour compounds, *E.coli*, protozoa tests for other microorganisms.



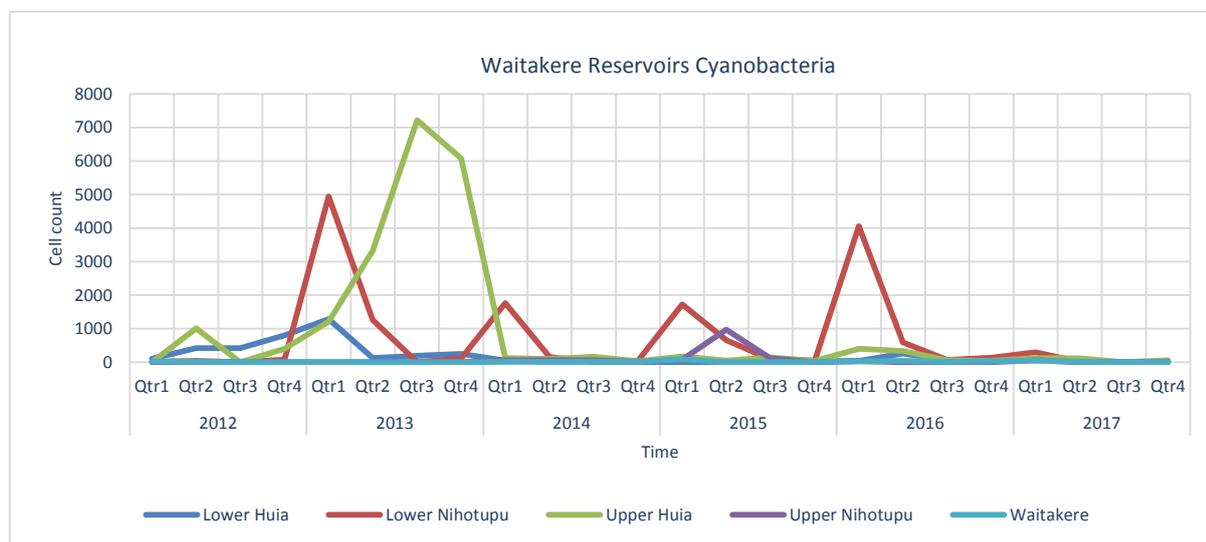
Water quality testing at the Lower Nihotupu Reservoir.

The analysis data shows that pH, temperature, dissolved oxygen and microbial pathogen indicators have remained relatively stable over the past five years. This indicates that the catchment protection measures (such as the 50 meter buffer zone and prohibitions on water contact) that are in place are effective in minimising the likelihood of water source contamination.

There have been notable changes in the levels of iron, manganese and naturally occurring organic matter in the reservoirs which is likely to be associated with seasonal weather patterns and lake level reduction given water supply system demand. It is expected that the quality of the water stored in the Waitākere Ranges reservoirs will change over time as the catchments evolve and other factors such as climate change take effect. Increased

nutrient and naturally occurring organic matter may encourage cyanobacteria/algal growth. Evidence of this has been observed over the last five years (refer to Figure 9 below).

Figure 9: Cyanobacteria/algal growth 2012 to 2017



Cyanobacterial/algal growth has been observed in all of the Waitākere Ranges reservoirs. These microorganism can generate compounds that can cause the water to smell (earthy, musty, or like a fish tank) and in extreme cases (depending on the species and the conditions), can produce cyanotoxins which can be harmful to human health.

Catchment management

The protection of the water catchments and reservoirs during the early 1900s was a fundamental driver in allowing the regeneration of land to native forest that was later incorporated as part of the Waitākere Ranges Regional Park (originally named Auckland Centennial Memorial Park established in 1940).



Lower Nihotupu Reservoir

The water catchments within the regional park contain a number of bush walking tracks and the reservoirs are the destination of some walks. To protect the water in the reservoirs from contamination people and dogs are prohibited within a 50 meter buffer zone around the dams and contact with water within a reservoir is prohibited. Discretionary activities in the regional park that are within water catchment land are required to obtain Watercare's approval.

8.3.3 Biosecurity management on designated land

Weeds and animal pests

Watercare works with the council to manage weeds on both its leased and owned land. Comprehensive weed mapping was undertaken in 2012 and was used as the basis for the development of a weed management plan. An assessment against the plan objectives will be undertaken in 2018 and will form the basis of a subsequent weed management plan.

Kauri dieback disease

Kauri dieback disease is discussed in the Terrestrial and aquatic ecosystems topic and presents a significant threat to the kauri forest ecosystem of the ranges. Kauri dieback disease has infected kauri trees within the water supply catchment areas (refer to Map 5 in Section 2: Terrestrial and aquatic ecosystems topic). Watercare staff are aware of the risk of spreading kauri dieback disease and its implications for the heritage area.

To prevent further spread of the disease Watercare operates in accordance with the Standard Operating Procedures for Kauri Dieback (August 2017). All staff and contractors working for Watercare in these water supply catchment areas are required to work in compliance with the approved procedures. Watercare ensures that all footwear, vehicles, tools and equipment are adequately cleaned, and that staff are vigilant in management practises to ensure that risk of spread to areas both inside and outside of the Waitākere Ranges, particularly to the Hunua Ranges, is avoided.

8.4 Suggestions for the future

As Auckland grows water resources will need to be sourced to meet demands but the water supplied from Waitākere Ranges will remain an important part of the city's water supply system.

The five dams in the Waitākere Ranges, and the Huia and Waitākere Water Treatment Plants are amongst the oldest water supply assets in Auckland. The water treatment plants are approaching the end of their operational life and are planned to be replaced in the near future. These treatment plants have to be robust, efficient and meet regulatory requirements in the face of increasing water treatment challenges (such as cyanobacteria) if they are to continue to meet the objective of the Act and supply water for the people of Auckland.

9 Abbreviations and Acronyms

	Abbreviations/Acronyms
Auckland Council	the council
Auckland Tourism Events and Economic Development	ATEED
Auckland Council District Plan – Operative Waitākere Section 2003	Waitākere City District Plan
Auckland Unitary Plan (Operative in Part)	AUP (OP)
Cultural Heritage Inventory	CHI
Council Controlled Organisation	CCO
Geographic Information System	GIS
Global Positioning System	GPS
Heritage New Zealand Pouhere Taonga Act 2014	HNZPT Act
Local Area Plan (s)	LAP(s)
Local Government (Auckland Council) Amendment Act 2010	LGAA
Regional Parks Management Plan 2010	RPMP
Reserve Management Plan	RMP
Resource Management Act 1991	RMA
State of the Waitākere Ranges Heritage Area 2018	the 2018 Report
Waitākere Ranges Heritage Area	the heritage area
Waitākere Ranges Heritage Area Act 2008	the Act
Waitākere Ranges Heritage Area Monitoring Report – Volume 2: Detailed results	the 2013 Report
Waitākere Ranges Local Board	the local board
Waitākere Ranges Regional Park	the regional park

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Indigenous terrestrial and aquatic ecosystems

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11 Appendices

Appendix 1: Waitākere Ranges Local Board funding for the Waitākere Ranges Heritage Area Programme 2013 to 2018

	Financial expenditure shown per financial year. Allocated budget shown in brackets. Actual spend shown in bold.				
	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018
Tangata Whenua Engagement	[\$10,000] \$0				
Ecological Planning	[\$15,000] \$7,560				
Local Area Plan Muddy Creeks	[\$5,000] \$1,850				
Local Area Plan Te Henga /Bethells Beach	[\$25,173] \$8,564	[\$20,173] \$12,964	[\$1,500] \$835		
Oratia Design Project	[\$2,500] \$248				
Heritage Area Public Information			[\$19,500] \$0		
Auckland Council Website Development		[\$2,000] \$3,960			
Foothills Design Guide	[\$2,500] \$6,600				
Building in the Bush Design Guide		[\$15,000] \$13,714	[\$2,000] \$10,950	[\$8,500] \$0	[\$2,000]
Heritage Area Community Forum		[\$5,000] \$262	[\$4,000] \$2,579	[\$4,000] \$0	
Heritage Area Conservation Network Forum		[\$4,000] \$4,344			
Long Tail Bat Research	[\$5,000] \$4,760	[\$5,000] \$5,000	[\$5,000] \$5,000	[\$5,000] \$5,000	[\$5,000]
Heritage Site Mapping – Phase 1		[\$12,500] \$12,430			
Heritage Site Mapping – Stage 1 Field Work		[\$38,500] \$37,557	[\$60,000] \$59,522	[\$30,000] \$30,000	[\$25,000]
Strategic Weed Projects (Bufferzone Project)	[\$20,000] \$20,000	[\$25,000] \$25,000	[\$25,000] \$25,000	[\$45,000] \$45,000	[\$45,000]

STATE OF THE WAITĀKERE RANGES HERITAGE AREA 2018

Community Weed Bins			[\$60,000] \$60,000	[\$100,000] \$100,000	[\$76,693]
Sustainable Neighbourhoods Programme	[\$90,000] \$90,000	[\$90,000] \$90,000			
Sustainable Neighbourhoods Transition Support			[\$15,000] \$15,000		
Weed and Pest Grants			[\$30,000] \$6940		
Road Corridor Management Guidelines	[\$20,000] \$1,550				
Road Safety Assessment Bethells / Te Henga				[\$10,000] \$0	[\$10,000]
Local Business Stocktake	[\$20,000] \$24,750	[\$5,000] \$5,000			
Small Business Facilitation		[\$3,000] \$1,986			
Thrive Newsletter			[\$5,000] \$5,000	[\$7,500] \$7,500	
Total budget allocated	[\$215,173]	[\$225,173]	[\$227,000]	[\$210,000]	[\$163,693]
Total budget spent	\$165,882	\$212,217	\$199,006	\$189,462	

Appendix 2: Update on recommendations for future monitoring from the 2013 Monitoring Report

Progress on recommendations for future monitoring from the 2013 Monitoring Report	
Topic recommendations from the 2013 Monitoring report	Progress on recommendations – 2018 (Note: equivalent topic names and order have changed in 2018 report)
2.1 Landscape	Section 3. Natural landforms, landscapes and the night sky topic
More accurate methods are required to assess the extent of ongoing vegetation removal.	Over 80 additional photos were taken during the 2017 assessment to enable landscape units to be analysed in more detail. This partially addresses the development and accuracy of the methods since the 2013 monitoring report.
Methods for evaluating changes in rural activities and their effects, both positive and negative, on rural character should be developed.	
The potential to develop indicators for landscape objectives which are difficult to measure (for example quietness and darkness) should be explored.	
	Dark Sky NZ has prepared a report to provide some baseline data for the level of darkness. This will enable comparisons to be made in future monitoring reports to determine if the heritage area is getting darker or lighter. A method for measuring quietness has not yet been determined.
2.2 Development and consent activity	Section 5. Development and consent activity topic
Modifications to the consents monitoring and reporting system (Pathways) should be considered and put into effect to provide more efficient monitoring and reporting to better meet the monitoring requirements of the Act.	Consent monitoring upgrades of the reporting system have been achieved by applying additional filtering to the Excel spreadsheet data derived from the upgraded Newcore consents records system.

Improved monitoring of vegetation growth and regeneration and the effectiveness of planting and weed management conditions and covenants should be undertaken so that their contribution to landscape and ecosystem enhancement and restoration can be properly assessed.	Improved monitoring of vegetation growth and regeneration has not taken place primarily as the aerial lidar survey from 2016 is not yet available for analysis. It is expected in 2018, beyond this reporting period.
'Snapshot' records of the urban footprint (buildings and impervious surfaces) for the heritage area and adjacent urban areas should be created and maintained, preferably on a regular basis.	The Urban footprint and impermeable surface layer was not up-dated in time for this report. However, work is underway on a new layer for the whole region and this is expected in 2018, beyond this reported period.
2.3 Ecosystems and ecosystem services	Section 2. Indigenous terrestrial and aquatic ecosystems topic
Better baseline information should be established on a full range of threatened species and ecosystem types, giving priority to those which contribute to achievement of national, regional and local biodiversity targets and objectives.	The council has prioritised data collection for more threatened or less-understood ecosystems between 2013 and 2017 and has mapped Biodiversity Focus Areas to ensure a range of native ecosystems are protected in the long term.
Continue to support collection of long term environmental and ecological datasets in order to provide outcome-based measures of ecosystem health and integrity.	Data collection for more threatened or less-understood ecosystems is being prioritised and monitoring of the Te Henga wetland has increased. In terms of the next five years (2018-2023) there will be: <ul style="list-style-type: none"> • monitoring of the dune systems at multiple locations along the west coast (commenced in 2017) • monitoring of critically threatened coastal turf ecosystems (commenced in 2016) • monitoring of seabirds • funding could be made available to enable monitoring of the road corridor to provide data on weeds and the effectiveness of weed management programmes.
Acquire high resolution aerial photography and digitizing of key data on a regular basis to provide a more adequate method for assessing habitat and landscape quality and change. This should be linked to a programme of field-based survey work. Priority should be given to fragmented/mosaic habitats	High resolution aerial photography and LIDAR data has been completed and is currently being analysed. Together with a new impermeable surface layer, this data is likely to be available for analysis in 2018, beyond this reporting period. Monitoring of the dune systems at multiple locations along the west coast (commenced in

around the periphery of the regional park and in the foothills, together with wetlands and dunelands.	2017).
Establish processes and invest in technology to allow easier and more timely collection/comparison of environmental, resource consent and community group data.	Lidar and aerial analysis should assist in comparison of environmental data with resource consents. Currently investigations into capturing data from the Newcore system is occurring to determine how consent data can be better linked to monitoring requirements.
Introduce better recording and follow up systems for covenants established through planning consent processes, along with monitoring of resource consent conditions regarding ecosystems and restoration.	The recording systems of Council have been subject to an ongoing rationalising and shift to the Newcore system which went live in June 2017. This has prevented any enhanced recording of information to be introduced within this monitoring period.
Provide for better monitoring of habitat quality outside the regional park, particularly in areas of existing or potential ecological value in the bush living landscapes and foothills, including an extension of the network of monitoring sites.	New monitoring sites outside of the regional park were not established for the 2013-2018 period. This is recommended in the 2018 report.
Consideration should be given to reporting on sites in the heritage area which are included in the national Land Use and Carbon Analysis System (LUCAS) programme.	Due to the national uncertainty around carbon pricing no action was taken to progress reporting about this over the monitoring period.
2.4 Cultural and built heritage	Section 7. Historic Heritage and scheduled trees topic
To understand the risk to historic heritage and site condition within the heritage area, regular monitoring and an open and participatory approach is recommended, working closely with tangata whenua and local community groups. Monitoring, survey and re-assessment allows recommendations to be made that reflect dynamic environments, changing significance of historic heritage and produce data based on the evidence,	The 2013 Monitoring Report was unable to determine the state of historic heritage, and therefore did not establish a baseline to enable future monitoring. The primary reason for this was a lack of quantitative and qualitative data, including data on the condition of historic heritage in the heritage area. The supporting technical historic heritage report ⁷⁷ provides more detailed staged recommendations on how to achieve the required baseline data to enable future monitoring. These recommendations include a

⁷⁷ Waitākere Ranges Historic Heritage Monitoring Report, 2013. This report was a summary of the following report: Gallagher, B. 2013, 'Waitakere Ranges Heritage Area 2013 Monitoring Report', prepared for Auckland Council.

<p>which has the potential to track changes in condition, environment, land use and the success or failure of management strategies previously employed.</p>	<p>data collation and rationalisation study in conjunction with staged site survey and monitoring. In 2014/2015 the data collation and rationalisation study was undertaken by council.</p>
<p>Highest initial priority should be given to sites at greatest risk, in particular:</p> <ul style="list-style-type: none"> • Peripheral sites, especially the open west coast coastline; • Ephemeral non-protected sites, especially pre-European sites; and • Areas of farming where animals graze. 	<p>In 2015/2016 council developed a field survey and monitoring programme for 653 priority sites. These sites were prioritised based on risk and site accessibility. These sites were primarily located on council land and/or were within the coastal marine area. To date, 164 archaeological sites along the Manukau Harbour coast and 90 built heritage places have been surveyed.</p> <p>The survey of all the priority sites was expected to be completed in time for the 2018 Monitoring Report however this was not possible due to the extent of remedial work required (correcting poor quality data, patchy survey information and poorly maintained archives) and the funding and staff resource limitations to undertake the work.</p> <p>The more detailed recommendations also identified priority research projects. To date, four research projects are underway. These relate to significant archaeological and built heritage sites that represent broad historic Māori and European settlement and industrial activities and land use in the heritage area.</p> <p>The data collation and rationalisation study and the priority site surveys have not involved iwi or local community groups. However the development of two Local Area Plans⁷⁸ involved significant community and iwi involvement. Both these Local Area Plans identified key actions which included the implementation of archaeological surveys, site management plans and monitoring of cultural heritage sites.</p>
<p>2.5 Recreation and visitor management</p>	<p>Section 4. Recreational use of the heritage area topic</p>
<p>Monitoring of visitor use and satisfaction should be extended to additional locations</p>	<p>There are a number of council departments, and council-controlled organisations (ATEED and AT), which are collecting data. However, there is</p>

⁷⁸ The Muddy Creeks (Parau, Laingholm, Woodlands Park, Waimā) (2014) and the Te Henga (Bethells Beach)/Waitākere River Valley (2015) Local Area Plans

in the heritage area.	inconsistency or lack of co-ordinated approach about where and how this data is collected and how the information is shared. In some cases, this makes comparisons between 2013 and 2017 or using figures collected by one department in relation to those collected by another department difficult.
Further research should be carried out to assess the potential for recreational activities based on the distinctive heritage and character of the foothills, including those which support traditional rural land uses.	There is still a lack of data around the satisfaction with, and use of, local parks and reserves. Further research on the potential for recreational activities based on the distinctive heritage and character of the foothills has not been progressed.
2.6 People and communities	Section 6. People and communities topic
Initiate further discussion with Te Kawerau a Maki and Ngati Whatua regarding ways to progress those parts of the Act which relate to their interests.	There is regular engagement with each iwi, and following the Treaty of Waitangi settlements, engagement has commenced on a range of matters related to the management of land that forms part of those settlements.
Include assessment of community wellbeing (through for example surveys) as part of future LAP preparation processes and incorporate into the next five-year monitoring report.	Has not been progressed
Develop a 'Quality of Life' indicator that is tailored to the experience of living in the heritage area. This could be implemented as a 'Quality of Life' Survey before the preparation of the proposed Area Spatial Plan for the Waitākere Ranges Local Board area (provisionally scheduled for 2016).	Has not happened as the Area Plan programme across the City has been put on hold.

Appendix 3: Extracts of the Waitākere Ranges Heritage Area Act 2008

Section 7 National significance and heritage features of heritage area

The heritage area is of national significance and the heritage features described in subsection (2), individually or collectively, contribute to its significance.

- (2) The heritage features of the heritage area are—
- (a) its terrestrial and aquatic ecosystems of prominent indigenous character that—
 - (i) include large continuous areas of primary and regenerating lowland and coastal rainforest, wetland, and dune systems with intact ecological sequences:
 - (ii) have intrinsic value:
 - (iii) provide a diversity of habitats for indigenous flora and fauna:
 - (iv) collect, store, and produce high quality water:
 - (v) provide opportunities for ecological restoration:
 - (vi) are of cultural, scientific, or educational interest:
 - (vii) have landscape qualities of regional and national significance:
 - (viii) have natural scenic beauty:
 - (b) the different classes of natural landforms and landscapes within the area that contrast and connect with each other, and which collectively give the area its distinctive character:
 - (c) the coastal areas, which—
 - (i) have a natural and dynamic character; and
 - (ii) contribute to the area's vistas; and
 - (iii) differ significantly from each other:
 - (d) the naturally functioning streams that rise in the eastern foothills and contribute positively to downstream urban character, stormwater management, and flood protection:
 - (e) the quietness and darkness of the Waitakere Ranges and the coastal parts of the area:
 - (f) the dramatic landform of the Ranges and foothills, which is the visual backdrop to metropolitan Auckland, forming its western skyline:
 - (g) the opportunities that the area provides for wilderness experiences, recreation, and relaxation in close proximity to metropolitan Auckland:
 - (h) the eastern foothills, which—

- (i) act as a buffer between metropolitan Auckland and the forested ranges and coasts; and
- (ii) provide a transition from metropolitan Auckland to the forested ranges and coast:
- (i) the subservience of the built environment to the area's natural and rural landscape, which is reflected in—
 - (i) the individual identity and character of the coastal villages and their distinctive scale, containment, intensity, and amenity; and
 - (ii) the distinctive harmony, pleasantness, and coherence of the low-density residential and urban areas that are located in regenerating (and increasingly dominant) forest settings; and
 - (iii) the rural character of the foothills to the east and north and their intricate pattern of farmland, orchards, vineyards, uncultivated areas, indigenous vegetation, and dispersed low-density settlement with few urban-scale activities:
- (j) the historical, traditional, and cultural relationships of people, communities, and tangata whenua with the area and their exercise of kaitiakitanga and stewardship:
- (k) the evidence of past human activities in the area, including those in relation to timber extraction, gum-digging, flax milling, mineral extraction, quarrying, extensive farming, and water impoundment and supply:
- (l) its distinctive local communities:
- (m) the Waitakere Ranges Regional Park and its importance as an accessible public place with significant natural, historical, cultural, and recreational resources:
- (n) the public water catchment and supply system, the operation, maintenance, and development of which serves the people of Auckland.

Section 8 Heritage area objectives

The objectives of establishing and maintaining the heritage area are—

- (a) to protect, restore, and enhance the area and its heritage features:
- (b) to ensure that impacts on the area as a whole are considered when decisions are made affecting any part of it:
- (c) to adopt the following approach when considering decisions that threaten serious or irreversible damage to a heritage feature:
 - (i) carefully consider the risks and uncertainties associated with any particular course of action; and
 - (ii) take into account the best information available; and
 - (iii) endeavour to protect the heritage feature:

- (d) to recognise and avoid adverse potential, or adverse cumulative, effects of activities on the area's environment (including its amenity) or its heritage features:
- (e) to recognise that, in protecting the heritage features, the area has little capacity to absorb further subdivision:
- (f) to ensure that any subdivision or development in the area, of itself or in respect of its cumulative effect, —
 - (i) is of an appropriate character, scale, and intensity; and
 - (ii) does not adversely affect the heritage features; and
 - (iii) does not contribute to urban sprawl:
- (g) to maintain the quality and diversity of landscapes in the area by—
 - (i) protecting landscapes of local, regional, or national significance; and
 - (ii) restoring and enhancing degraded landscapes; and
 - (iii) managing change within a landscape in an integrated way, including managing change in a rural landscape to retain a rural character:
- (h) to manage aquatic and terrestrial ecosystems in the area to protect and enhance indigenous habitat values, landscape values, and amenity values:
 - (i) to recognise that people live and work in the area in distinct communities, and to enable those people to provide for their social, economic, environmental, and cultural well-being:
- (j) to provide for future uses of rural land in order to retain a rural character in the area:
- (k) to protect those features of the area that relate to its water catchment and supply functions:
- (l) to protect in perpetuity the natural and historic resources of the Waitakere Ranges Regional Park for their intrinsic worth and for the benefit, use, and enjoyment of the people and communities of the Auckland region and New Zealand.

Appendix 4: Public feedback received at 15 June 2017 meeting

These comments are transcribed from 'post-it notes' used at the meeting. Minor editing has been done to assist the reader. Red dots were used to indicate where other people at the meeting also supported the comments on the 'post-it notes'. At the time of this meeting water catchment and supply was not identified as a topic which is why there are no comments grouped under this heading.

General Concerns

Concerned objectives of the WRHA Act are not being consistently upheld, especially by AC Consenting processes	
The council fails to follow the WRHA Act when consenting e.g. felling of protected trees without affected party consents	
CCO – AT etc. not being responsible on their own land. Need clear directive	2 red dots
Council must police its own rules regarding maintenance of septic water systems both traditional and hi tech	4 red dots
Council shouldn't be doing the monitoring report.	
Tree rules need to be strengthened following changes to the law which weakened tree rules	2 red dots
Now feel disfranchised since amalgamation i.e. engagement with council now very difficult	
More resources are needed to ensure compliance with both general and specific rules	
Weak integration of the WRHA Act and consenting processes? Do we need an amendment to the WRHA Act to sharpen teeth?	
Will monitoring analysis verify how effective the WRHA Act objectives have been? Will the council be able to identify what improvements to the area have taken place?	

Landscape

Householders and builders to be encouraged / educated to use darker paint colours on buildings in the ranges	
Local landowners need education and encouragement work to on their roadside margins, e.g. weeds	
AT and Regional Parks Infrastructure should give effect to the WRHA Act and its values i.e. not a proliferation of signs, badly located toilets	3 red dots
Large trees removed lack of protection	
Resource and building consent processes must become more practical and efficient in their application	1 red dot
Colour palettes for development would help mitigate adverse effects of	

development on the landscape	
Views from the sea are important	1 red dot
Council should put a heavy weighing on the heritage and protected areas when assessing consents	
Regional parks impact can have a big impact i.e. even changing their wooden directional signs to flash plastic ones are inappropriate and their tree removal activities	1 red dot
Long term would like to see far fewer pine trees, pink cherry blossom trees etc. and more native trees.	3 red dots
Lose the Laingholm Phoenix palms	1 red dot
Bring back prohibited activity status (for subdivision) in the WR Zones	
Protect our ridgelines more rigorously	3 red dots
Concerns about wilding pine trees which are impacting on the landscape (all over the ranges)	3 red dots
Kauri dieback has seriously affected the landscape of large areas of the heritage area Landscape is being altered illegally in the ranges e.g. bush clearance, and when reported to council, very little is done in my experience	2 red dots
Actively maintain the dark night sky qualities esp. relevant to AT	2 red dots

Development and Consents

Cutting down of protected trees needs to stop removal of large trees – no removal of any trees	
Too many unconsented activities and no real follow-up of complaints	2 red dots
Oratia Water stealing Promote subdivision use home water tanks instead	
All new consent should require water tanks, rain gardens, public toilets too	3 red dots
How are consents monitored and who is monitoring council performance?	
Consents analysis is required of <ul style="list-style-type: none"> • Trees • Subdivisions • Effect of WRHA Act consenting accuracy Council should put a heavy weight of the Heritage protected areas when assessing consents Follow up and enforcement of infringements. Follow the rules. Consenting long, different and costly and people doing a lot of illegal work and these not enforced All up more restrictive	
How have the liberalised tree trimming regulations impacted the area?	
Need to test the different impact of the WRHA Act on consenting activity given RMA requirements to consider cumulative effects	

Ecosystems and Ecosystem Services

Additional weed control on roadsides, especially Scenic Drive and feeder roads to the beaches need to be increased	
Contractors need training to better identify problem species and spray out beyond the roadside e.g. Japanese honey suckle infestation on turn off to Bethells on Scenic Drive.	
Need for Ecological Pest Management programme to control possums in particular and especially in Piha	
Lack of active efforts by AC to reduce the proliferation of exotic weeds including Pampas, Cape Ivy etc.	
Protecting Muddy Creek LAP eco corridor and more value on invertebrates, native fish species in relation to tree clearance	2 red dots
How can we improve our response to Kauri dieback?	
Actively pursue clean swimming in streams and lagoons – no more reports!	2 red dots
Cornwallis – French Bay Manukau Harbour Wood Bay Water quality – sewage overflow around the whole coast	1 red dot
Why did folk work to create the heritage area? Because of its environment <ul style="list-style-type: none"> The hills and the bush If these special ecosystems are not protected and the act is an ASS. Bush = trees, plants and the animals that live there	2 red dots
Invasive weeds are out of control in many places in the heritage area e.g. Agapanthus, Pampas, wattles	6 red dots
Do not use glyphosate Get AT to drop the use Do it with steam though Road are the reservoir of a lot of the weeds in the Ranges. AT are completely incompetent at controlling weeds on the road corridors, particularly climbing weeds and Wattle etc.	2 red dots
Engage with all trade users via an attractive trade map on internet and mobile apps – (social media) Have pop-ups that ask people to prevent the spread of Kauri dieback	1 red dot
Little Muddy Creek Sediment and water quality, very tidal, lots of kayaks etc., concerned about Water Treatment Plant at top of Waituna Would affect water quality and make it not swimmable.	
Locals running Pest animals and weeds Possum and rat central South Titirangi peninsulas from Little Muddy Creek to Wood Bay and north to village	4 red dots
Predator free Auckland needs to be implemented in heritage area. Possum	4 red dots

problems are escalating rapidly Dead is good	3 red dots
Pest free Waitākere If Kaipatiki can do it so can we!	1 red dot
Waitākere Valley big pine trees! Need removal	1 red dot
Waitākere swamps (Bethells Road) resume Willow clearance project ASAP. And other weeds e.g. Honeysuckle and Arundo Donax which are invading the Mosquito Lane area of Bethells Road. N.B. Willow control is now going backwards, and all the gains will be lost if the central projects is not resumed ASAP	1 red dot
Maintain and enhance protection of coastal habitats and species Including threats from vehicles on beaches, dogs i.e. penguins and seals, weeds	1 red dot
Increasing pressures and threats from diseases and pest e.g. Kauri dieback Myrtle rust, possums	
All indigenous trees/vegetation – girth/age should have some protection Heritage area, all trees should be protected	2 red dots
Rabbit control	
Pest control <ul style="list-style-type: none"> • Possums • Rats Auckland South to Titirangi	
Encourage local pest control, maybe negotiate a deal with trap makers that can be purchased by locals, this encourages those people to adopt bush	1 red dot
The Kauri dieback prevention programme is not working. Council needs to do more to promote the problem via internet track mapping and social media (mobile apps) Still promoting Hillary Trail	1 red dot
Stop promoting Hillary trail and promote Kauri Dieback prevention through social media	1 red dot
Kauri Dieback Close healthy areas Close infected until tracks upgraded Improve cleaning stations and staff them Stop Hillary trail marathon Prosecute people who use closed tracks More funding for biosecurity Upgrade cleaning stations Enforce track closures	1 red dot
Run a campaign “Make this your last cat in the ranges”	1 red dot
Pae o Te Rangī Tobacco weeds needs attention ASAP	1 red dot

(long road – access) council owned and part regional park	
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People and Communities

Recognition of the historical contributions of trampers – part of the cultural heritage of the area. Waitākere track user's forum.	
More coordinated support for community environment initiatives	1 red dot
AT have an important role re street signs and furniture etc. If not well done it can affect people's perceptions	

Cultural and Built Heritage

The tramping clubs 1920s to early 1980 were a majority in track use of the Waitākere Ranges. Saw millers, dam builders and farmers first created the tracks. The trampers designed the network we have today. The early trampers need to be recognised part of the ranges heritage by collection text and image archive in Council A display in the Pararaha Valley	1 red dot
Little upkeep of abandoned buildings in Woodlands Park Road	2 red dots
AC has allowed a concession business to establish on an archaeological heritage site at the Radar Station. Piha concession should be rescinded.	
Maintain integrity of heritage landscape i.e. natural, green	5 red dots
Heritage buildings need to be retained in appropriate contexts., i.e. old farmhouses in farm open space settings	2 red dots
Give Cornwallis Wharf reserve sense of grandeur! Live ships! Look in Marlborough Sounds!	
Built Heritage brochure needed specifically for the heritage area including what is open for public access	
Use Māori place names	
The level of protection of natural features is going backwards. AC promoting features on social media without monitoring or control. Features are being destroyed.	
Lack of acknowledgement of Māori history of Little Muddy Creek/Ridge line.	1 red dot
Hellaby House How is it managed now? Who is responsible? How are council heritage assets managed? Are they open to the public?	
No private camping concessions of heritage land especially historic sites	
Huia Road brick bridge by Tangiwai Reserve, Auckland's oldest in disrepair.	
Some cultural heritage may be best celebrated through reconstruction i.e. Cornwallis wharf	1 red dot
CCOs need to hold their scheduled buildings with a minimum standard e.g. Nihotupu Filter station	1 red dot

Tunnel point – old train line - lots of artefacts Regional park put in a toilet not in a suitable place Implementation does not always take into account the strategic direction	
Issue with development on properties surrounding Historic heritage places. (No protection afforded) e.g. non-complying development not taking into account the WRHA Act. i.e. allowing a 3-storey development next door	
Māori heritage isn't necessary visible but needs respect / protection celebration as appropriate defined by iwi	3 red dots
AT needs to take the WRHA Act into account and Parks also re their built infrastructure – road signs, toilets, lights, toilets	3 red dots
Tomorrows cultural heritage is todays building i.e. Arataki and elevations – contemporary buildings now but define the heritage area in part for the future	
Opportunity to enhance and continue heritage features through design guidelines use of colour and building materials	
Built new development environment should be subservient to natural environment	
Sensitively interpret and respect cultural and built heritage features i.e. Tunnel Point but use of compromise or diminished integrity	1 red dot

Recreation and Visitor Management

The track use 2010 was roughly 700K day visits per annum. It is now roughly 850-1000K p.a. 2008 = Kauri dieback 2010 = Hillary trail When the track began to exceed the annual Regional growth	
Most of the track users today use internet and mobile apps to plan their journeys in the Waitākere. Council should setup internet track maps with track users and mobile apps to engage with track users about Kauri dieback.	1 red dot
Engage with your track users community for Waitākere Ranges by setting up an advisory panel of disabled family walkers, runners, mountain bikers, trampers and every walker possible.	
Investigate the current track monitoring methodology – what are the data capture points? (the indicator tracks) and what are the analyses models?	
Stop the human vectors of kauri dieback. Close track into and through uninfected areas. STOP The Hillary marathon Waitākere is a class 1 conservation park 1st and foremost not a recreational park	
Dogs should be limited in regional parks and on beaches.	
Dogs – Whatipu – banned always Cat – curfew and feral cats	
Control dogs access by laws	2 red dots
Off leash day walkers not monitored after hours, spread Kauri dieback,	

including professional pack walker	
More mountain biking Open 4WD tracks Beveridge is very popular It's not about fast riding but open access	
Extra mountain bike tracks in the Waitākeres Yes, but not the existing walking tracks	
Mountain biking on other tracks other than Beveridge Ridge Road Long Road Cascades Enforcement	
Keep mountain bikes off existing tracks	6 red dots
Safer walking around Waitākere roads footpaths!	1 red dot
Public transport preventing people walking up Scenic Drive	
Park and Ride! Has it come to that? Or should it?	2 red dots
Designate Orpheus Bay as an official nudist beach. (Someone keeps putting up signs saying no nudity!)	2 red dots
Engage and inspire these 'meet-up' groups via the media, they use Meet-up (sometimes 100 or more at a time) via internet, track maps and mobile apps.	
Who and how are unofficial walking groups monitored? There seems to be an increased number of new groups e.g. 'Waitākere Walks'	1 red dot
Plastic signage replaces more appropriate eco signage. A backward step.	
Avoid proliferation of signs	
Council Controlled Land Need to look at classification of reserve scientific reserve most stringent	1 red dot
Close tracks through infected areas until those tracks are up graded. The current survey results clearly indicate the movement of sports along the tracks	
Karekare, Piha, Anawhata car parks over flowing in summer, weekends, busier and more congested than ever, what is the solution? Anawhata Carpark- cap.	1 red dot
Te Henga <ul style="list-style-type: none"> • Capacity at hotspots • Incorrect information on websites • Dogs free running disturbing native birds 	
Pararaha Valley as a wilderness area on the West Coast in 1960s-1790s. Tramper sports day – invite people from across the country.	

Appendix 5: Indicator results summary table

Scores are based on a 1000-point scale from 1.000 (excellent) to 0.000 (very poor).

The 'Change 2012-2017' column is coded as follows: ↗ = improvement in indicator; ↘ = deterioration in indicator; → = no significant change in indicator; # = data available for 2017, but the absence of 2012 information means change is not reported; - = no data available for 2012-17 but data is likely to be available in time for inclusion in the next report; * = no data available at present and collecting the information required to inform the indicator is a longer-term proposition; n/a = indicator not relevant to the 2012-17 monitoring period. + = These indicators are not included in this report as data available relate to a 10-year time period back to the enactment of the Act in 2008, rather than the 2012-17 time period covered in this report

Code and category	Sub-category	Name	Score in 2012	Score in 2017	Change 2012 - 2017
Habitat 1 ⁺	Habitat	Percentage cover of indigenous ecosystems	n/a	n/a	n/a
Habitat 2	Habitat	Loss or gain of indigenous ecosystems (area and %)	0.999	No remote sensing data	-
Habitat 3	Habitat	Loss or gain of significant indigenous habitat (area and %)	0.999	No remote sensing data	-
Habitat 4	Habitat	Loss or gain of threatened species habitat (area and %)	No data (other)	No data (other)	*
Habitat 5	Habitat	Loss or gain of naturally uncommon ecosystem types (area and %)	No data (other)	No data (other)	*
Riparian 1	Ecosystem services	Proportion of riparian area around Zone I streams with indigenous wetland, forest and/or scrub landcover	0.909	No remote sensing data	-
Riparian 2	Ecosystem services	Proportion of riparian area around Zone II streams with indigenous wetland, forest and/or scrub landcover	0.659	No remote sensing data	-

Code and category	Sub-category	Name	Score in 2012	Score in 2017	Change 2012 - 2017
Riparian 3	Ecosystem services	Proportion of riparian area around Zone I streams with wetland, forest or scrub landcover	0.915	No remote sensing data	-
Riparian 4	Ecosystem services	Proportion of riparian area around Zone II streams with wetland or indigenous vegetation landcover	0.709	No remote sensing data	-
Threatened spp 1	Biodiversity	Proportion of threatened species with a stable or increasing population size	No data (other)	No data (other)	*
Threatened spp 2	Response	Proportion of threatened fauna species under active conservation management	No data (other)	0.570	#
Threatened spp 3	Response	Proportion of threatened flora species under active conservation management	No data (other)	0.070	#
Protection 1	Response	Total area of ecosystems (area and %) protected in reserves	0.778	0.782	↗
Protection 2	Response	Total area of indigenous ecosystems (area and %) protected in reserves	0.789	0.793	↗
Protection 3	Response	Total area of significant indigenous ecosystems (area and %) protected in reserves	0.831	0.834	↗
Conservation 1	Response	Proportion of indigenous forest habitat under active conservation management	No data (other)	No data (other)	-

Code and category	Sub-category	Name	Score in 2012	Score in 2017	Change 2012 - 2017
Conservation 2	Response	Weed management	1.000	0.900	↘
Conservation 3	Response	Pest animal management	0.934	0.946	↗
Kauri 1	Threats	Change in the spatial extent of kauri dieback	0.890	0.764	↘
Forest 1 ⁺	Biodiversity	Total area of forest and scrub habitat	n/a	n/a	n/a
Forest 2	Habitat	Loss or gain of forest and scrub habitat (area and %)	0.999	No remote sensing data	-
Forest 3	Biodiversity	Overall percentage biomass of indigenous plants in forest plots	0.999	0.998	→
Forest 4	Threats	Overall percentage biomass of weedy exotic plants in forest plots	0.999	0.998	→
Forest 5	Threats	Average biomass of exotic weeds in forest plots	0.999	0.997	→
Forest 6	Biodiversity	Proportion of forest plots with no exotic trees or saplings	0.880	0.850	→
Forest 7	Threats	Average percentage dominance of weedy exotic saplings	0.998	0.998	→
Forest 8	Threats	Average percentage dominance of weedy exotic seedlings	0.999	0.998	→
Forest 10	Biodiversity	Average species diversity of indigenous plants	0.900	0.980	→
Forest 11	Biodiversity	Change in avifauna in forest and scrub habitat	0.66	0.64	→
Wetland 1 ⁺	Biodiversity	Total wetland area	n/a	n/a	n/a
Wetland 2	Habitat	Loss or gain of wetland habitat (area and %)	0.999	No remote sensing data	-

Code and category	Sub-category	Name	Score in 2012	Score in 2017	Change 2012 - 2017
Wetland 3	Biodiversity	Native: exotic plant biomass ratio in monitored wetlands	0.738	0.779	➔
Wetland 4	Biodiversity	Average native: exotic plant biomass ratio in monitored wetlands	0.752	0.760	➔
Wetland 5	Biodiversity	Average percentage frequency of native plants in monitored wetlands	0.587	0.646	➔
Wetland 6	Threats	Average percentage frequency of weedy plants in monitored wetlands	0.652	0.711	➔
Wetland 7	Biodiversity and threats	Change in wetland condition index	0.844	0.836	➔
Wetland 8	Biodiversity and threats	Change in wetland perimeter condition index	0.904	0.844	➔
Wetland 9	Biodiversity	Change in avifauna in wetland habitat	0.52	0.600	➔
Dune 1 ⁺	Biodiversity	Total duneland area	n/a	n/a	n/a
Dune 2	Habitat	Loss or gain of duneland habitat (area and %)	1.000	No remote sensing data	-
Dune 3	Biodiversity	Proportion of duneland area with a landcover of indigenous ecosystems	0.810	No remote sensing data	-
Dune 4	Biodiversity	Proportion of duneland area with urban or production agriculture landcover	0.911	No remote sensing data	-
Dune 5	Biodiversity	Building and impervious cover on duneland area (area and %)	No remote sensing data	No remote sensing data	-

Code and category	Sub-category	Name	Score in 2012	Score in 2017	Change 2012 - 2017
Dune 6	Response	Proportion of indigenous duneland habitat under active conservation management	No data (other)	No data (other)	-
Freshwater 1	Biodiversity	Ecological Quality (Rivers): Macroinvertebrate Community Index (MCI)	0.711	0.677	➔
Freshwater 2	Biodiversity	Native fish Index of Biological Integrity IBI	0.766	No data (other)	-
Freshwater 3	Ecosystem services	Water Quality (Rivers)	1.000	0.791	➔
Freshwater 4	Ecosystem services	Ecological Quality (Lakes): Rotifer Index	0.450	0.487	➔
Freshwater 5	Ecosystem services	Ecological Quality (Lakes): Macrophytes (LakeSPI)	0.100	0.080	⬇
Freshwater 6	Ecosystem services	Groundwater quality (for discharge into rivers)	No data	No data (other)	*
Water supply 1	Ecosystem services	Ecological quality – change in macro invertebrate index above vs. below dam	0.770	No data (other)	-
Water supply 2	Ecosystem services	Water quality in supply lakes	1.000	No data (other)	-

Appendix 6: Description, approximate area and conservation status of indigenous ecosystems types in the heritage area⁷⁹

Description, approximate area and conservation status of indigenous ecosystems types (Singers et al. 2017) in the heritage area (Table 1 ⁸⁰)			
Ecosystem description (and code)	Approx. total area (ha)	% of total area	Threat status (based on IUCN criteria)
Kauri-podocarp-broadleaf forest (WF11)	9,660	44.7	Endangered
Manuka-kanuka scrub (VS3)	3,700	17.1	Least Concern
Broad-leaved scrub and forest (VS5)	2,870	13.3	Least Concern
Kanuka scrub and forest (VS2)	2,610	12.1	Least Concern
Tawa-kohekohe-rewarewa-hinau-podocarp forest (WF13)	600	2.8	Vulnerable
Pohutukawa-puriri forest (WF4)	470	2.2	Endangered
Spinifex-pingao foredune (DN2)	315	1.5	Endangered
Oioi-knobby clubrush sedgeland (DN5)	265	1.2	Critically Endangered
Pohutukawa treeland, flaxland and rockland (CL1)	260	1.2	Vulnerable
Kauri forest (WF10)	205	1	Endangered
Raupo reedland (WL19)	70	0.3	Endangered
Taraire-tawa-podocarp forest (WF9)	60	0.3	Endangered
Hebe - wharariki (mountain flax) flaxland and rockland (CL6)	30	0.1	Least Concern
Machaerina sedgeland (WL11)	25	0.1	Critically Endangered
Kahikatea forest (MF4)	20	0.1	Critically Endangered
Manuka gumland (WL1)	15	0.1	Critically Endangered

⁷⁹ Table 1 (pg 2) Landers, Todd J, Bishop, Craig D, Holland, Kristi R, Lawrence, Grant R and Waipara, Nick W (2018). Changes in indigenous ecosystems and the environment within the boundary of the Waitākere Ranges Heritage Area Act 2008: 2012-2017 report. Auckland Council technical report, TR2018/002

Kahikatea-pukatea forest (WF8)	7	<0.1	Critically Endangered
Coastal turf (SA5)	8	<0.1	Critically Endangered
Harakeke-toetoe-Carex flaxland (WL18)	3	<<0.1	Critically Endangered
Mangrove forest and scrub (SA1) ¹	2	<<0.1	Least Concern
Oioi-restiad reedland (WL10)	1	<<0.1	Endangered
Lakeshore turf (WL15)	<0.1	<<0.1	Critically Endangered

+ = These indicators are not included in this report as data available relate to a 10-year time period back to the enactment of the Act in 2008, rather than the 2012-17 time period covered in this report.

Appendix 7: Duneland habitat in the heritage area⁸¹

Name	Approx size	Brief description
Whatipu duneland and wetland complex	735 ha	Whatipu comprises an expansive and largely intact mosaic of dunes, brackish and freshwater wetlands that are contiguous with terrestrial forest and shrubland.
Karekare Beach and duneland	14 ha	A moderate-sized area of largely intact dunes with scattered dwellings, bounded by steep coastal slopes and cliffs.
Piha Beach and duneland (north and south)	12.0 + 5.5 ha	Most of the dune habitat is highly modified by coastal development and weeds. The foredunes are the most intact part of the Piha duneland system and are characterized by abundant spinifix and smaller amounts of pingao. Dune planting and weeding is carried out by a local community group.
Whites Beach	1.5 ha	A small isolated beach north of Piha with an area of unmodified duneland (some of which is privately owned) buffered by steep coastal slopes.
Anawhata	3.5 ha	This isolated beach contains a largely unmodified dune system bisected by a major watercourse. It is semi-contiguous with dunes at Parera Bay to the north.
Parera Bay	1.5 ha	Lies just to the north of Anawhata and contains a small area of unmodified dunes bounded by steep coastal slopes.
Wahirua Bay	1.5 ha	A very small, isolated beach south of Wigmore Bay that contains a small, unmodified area of duneland bounded by steep coastal slopes and cliffs.
Wigmore Bay	2.5 ha	An isolated beach south of Te Henga that contains a small, unmodified area of duneland bounded by steep coastal slopes and cliffs.
Bethells Beach/Te Henga	140 ha	The site is characterized by extensive foredunes, two dune lakes, dune forest (indigenous and pine), residential dwellings, open grassland, and a large area of inland dunes within the Te Henga Scenic Reserve.
O'Neill Bay	5 ha	A small, but largely intact indigenous dune system.
TOTAL	922 ha	

⁸¹ Table 11 (pg 102, 103) Landers, Todd J, Bishop, Craig D, Holland, Kristi R, Lawrence, Grant R and Waipara, Nick W (2018). Changes in indigenous ecosystems and the environment within the boundary of the Waitākere Ranges Heritage Area Act 2008: 2012-2017 report. Auckland Council technical report, TR2018/002

Appendix 8: Threatened species in the heritage area

Note that the table numbers are those used in the footnoted report.

⁸²Table 37: ‘Threatened’ and ‘at risk’ bird species known in the Heritage Area and an indication of any direct species management by Auckland Council known to occur from 2012 to 2017. Current threat rankings are taken from Robertson *et al.* 2017).

Scientific name	Common name	Threat status	Actively managed 2012-2017
<i>Anas superciliosa</i>	Grey duck	Threatened-Nationally Critical	✓
<i>Anarhynchus frontalis</i>	Wrybill	Threatened-Nationally Vulnerable	✓
<i>Anas chlorotis</i>	Brown Teal	At Risk-Recovering	
<i>Anthus novaeseelandiae novaeseelandiae</i>	New Zealand pipit	At Risk-Declining	
<i>Botaurus poiciloptilus</i>	Bittern	Threatened-Nationally Critical	
<i>Bowdleria punctata vealeae</i>	Fernbird	At Risk-Declining	
<i>Callaeas wilsoni</i>	Kokako	At Risk-Recovering	
<i>Charadrius bicinctus bicinctus</i>	Banded dotterel	Threatened-Nationally Vulnerable	✓
<i>Charadrius obscurus aquilonius</i>	New Zealand dotterel - Northern	At Risk-Recovering	✓
<i>Egretta sacra sacra</i>	Reef heron	Threatened-Nationally Endangered	✓
<i>Eudynamys taitensis</i>	Long-tailed cuckoo	At Risk-Naturally Uncommon	
<i>Eudyptula minor iredalei</i>	Little penguin	At Risk-Declining	✓
<i>Gallirallus philippensis assimilis</i>	Banded rail	At Risk-Declining	
<i>Hydroprogne caspia</i>	Caspian tern	Threatened-Nationally Vulnerable	✓
<i>Haematopus unicolor</i>	Variable oystercatcher	At Risk-Recovering	✓
<i>Larus bulleri</i>	Black-billed gull	Threatened-Nationally	✓

⁸² Appendix 3 – Threatened species in the Heritage Area (pg 118 – 125) Landers, Todd J, Bishop, Craig D, Holland, Kristi R, Lawrence, Grant R and Waipara, Nick W (2018). Changes in indigenous ecosystems and the environment within the boundary of the Waitākere Ranges Heritage Area Act 2008: 2012-2017 report. Auckland Council technical report, TR2018/002

Scientific name	Common name	Threat status	Actively managed 2012-2017
		Critical	
<i>Larus novaehollandiae scopulinus</i>	Red-billed gull	At Risk-Declining	✓
<i>Mohoua albicilla</i>	Whitehead	At Risk-Declining	
<i>Nestor meridionalis septentrionalis</i>	Kaka	At Risk-Recovering	✓
<i>Petroica longipes</i>	North Island Robin	At Risk-Declining	
<i>Phalacrocorax carbo novaehollandiae</i>	Black shag	At Risk-Naturally Uncommon	✓
<i>Phalacrocorax sulcirostris</i>	Little black shag	At Risk-Naturally Uncommon	✓
<i>Phalacrocorax varius varius</i>	Pied shag	At Risk-Recovering	✓
<i>Poliiocephalus rufopectus</i>	Dabchick	At Risk-Recovering	✓
<i>Porzana pusilla affinis</i>	Marsh crake	At Risk-Declining	✓
<i>Porzana tabuensis tabuensis</i>	Spotless Crake	At Risk-Declining	✓
<i>Puffinus carneipes</i>	Flesh-footed shearwater	Threatened-Nationally Vulnerable	
<i>Puffinus griseus</i>	Sooty shearwater	At Risk-Declining	
<i>Sterna striata striata</i>	White-fronted tern	At Risk-Declining	✓

Table 38: ‘Threatened’ bat species known in the Heritage Area and an indication of any direct species management by Auckland Council known to occur from 2012 to 2017. Current threat rankings are taken from O’Donnell *et al.* (2013).

Scientific name	Common name	Type of organism	Threat status	Actively managed 2012-2017
<i>Chalinolobus tuberculatus</i>	Long-tailed bat	Bat	Threatened-Nationally Vulnerable	✓

Table 39: 'Threatened' and 'at risk' reptile and frog species known in the Heritage Area and an indication of any direct species management by Auckland Council known to occur from 2012 to 2017. Current threat rankings are taken from Hitchmough *et al.* (2015) for reptiles and Newman *et al.* (2013) for frogs.

Scientific name	Common name	Type of organism	Threat status	Actively managed 2012-2017
<i>Dactylocnemis pacificus</i>	Pacific gecko	Herpetofauna	At Risk-Relict	✓
<i>Leiopelma aff. hochstetteri</i> "Waitākere"	Hochstetter's frog (Waitākere group)	Herpetofauna	At Risk-Relict	✓
<i>Mokopirirakau granulatus</i>	Forest gecko	Herpetofauna	At Risk-Declining	✓
<i>Naultinus elegans</i>	Elegant gecko	Herpetofauna	At Risk-Declining	✓
<i>Oligosoma aff. smithi</i> "Three Kings, Te Paki, Western Northland"	Tatahi skink	Herpetofauna	Declining-Regionally Endangered	✓
<i>Oligosoma ornatum</i>	Ornate skink	Herpetofauna	At Risk-Declining	

Table 40: Threatened freshwater fish species known in the Heritage Area and an indication of any direct species management by Auckland Council known to occur from 2012 to 2017. Current threat rankings are taken from Goodman *et al.* (2014).

Scientific name	Common name	Type of organism	Threat status	Actively managed 2012-2017
<i>Anguilla dieffenbachii</i>	Longfin eel	Freshwater Fish	At Risk-Declining	
<i>Cheimarrichthys fosteri</i>	Torrentfish	Freshwater Fish	At Risk-Declining	
<i>Galaxias argenteus</i>	Giant kokopu	Freshwater Fish	At Risk-Declining	✓
<i>Galaxias brevipinnis</i>	Koaro	Freshwater Fish	At Risk-Declining	
<i>Galaxias maculatus</i>	Inanga	Freshwater Fish	At Risk-Declining	
<i>Galaxias postvectis</i>	Shortjaw kokopu	Freshwater Fish	Threatened-Nationally Vulnerable	✓
<i>Geotria australis</i>	Lamprey	Freshwater Fish	Threatened-Nationally Vulnerable	✓

<i>Gobiomorphus huttoni</i>	Redfin bully	Freshwater Fish	At Risk-Declining	
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Table 41: ‘Threatened’ and ‘at risk’ invertebrate species known in the Heritage Area and an indication of any direct species management by Auckland Council known to occur from 2012 to 2017. Current threat rankings are taken from Hitchmough (2013).

Scientific name	Common name	Type of organism	Threat status	Actively managed 2012-2017*
<i>Paranephrops planifrons</i>	koura	Aquatic crustacean	At Risk-Declining	
<i>Peripatus</i>	Velvet worm	Onychophora	At Risk-Declining	
<i>Paraphanta busbyii</i>	kauri snail	Snail	At Risk-Naturally Uncommon	

*At present no specific invertebrate management actions have been set by Auckland Council, however invertebrates are indirectly being managed through the various pest management programmes that exist within the Heritage area.

Table 42: ‘Threatened’ and ‘at risk’ plant species known in the Heritage Area and an indication of any direct species management by Auckland Council known to occur from 2012 to 2017. National threat rankings are taken from de Lange *et al.* (2013) and regional threat rankings are taken from Stanley *et al.* (2005).

Scientific name	Threat status - National	Threat status - Regional	Actively managed 2012-2017
<i>Abrodictyum strictum</i>	Not Threatened	Range Restricted	
<i>Adelopetalum tuberculatum</i>	Naturally Uncommon	Sparse	
<i>Anthosachne kingiana</i> subsp. <i>multiflora</i>	Data Deficient	Gradual Decline	
<i>Ascarina lucida</i> var. <i>lucida</i>	Not Threatened	Regionally Critical	
<i>Asplenium appendiculatum</i> subsp. <i>maritimum</i>	Not Threatened	Regionally Critical	
<i>Asplenium hookerianum</i> var. <i>hookerianum</i>	Not Threatened	Sparse	
<i>Astelia grandis</i>	Not Threatened	Regionally Critical	
<i>Azolla filiculoides</i>	Not Threatened	Regionally Endangered	

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<i>Blechnum blechnoides</i>	Not Threatened	Sparse	
<i>Blechnum colensoi</i>	Not Threatened	Regionally Critical	
<i>Blechnum nigrum</i>	Not Threatened	Range Restricted	
<i>Blechnum procerum</i>	Not Threatened	Range Restricted	
<i>Blechnum triangularifolium</i>	Not Threatened	Sparse	
<i>Blechnum vulcanicum</i>	Not Threatened	Regionally Critical	
<i>Botrychium australe</i>	Naturally Uncommon	Regionally Critical	
<i>Brachyglottis kirkii</i> var. <i>angustior</i>	Nationally Vulnerable	Not listed	
<i>Brachyglottis kirkii</i> var. <i>kirkii</i>	Declining	Serious Decline	
<i>Bulbophyllum tuberculatum</i>	Naturally Uncommon	Sparse	
<i>Caladenia atradenia</i>	Naturally Uncommon	Sparse	
<i>Carex litorosa</i>	Declining	Regionally Critical	✓
<i>Carmichaelia williamsii</i>	Relict	Regionally Critical	
<i>Celmisia major</i> var. <i>major</i>	Naturally Uncommon	Gradual Decline	
<i>Centipeda aotearoana</i>	Naturally Uncommon	Data Deficient	
<i>Centipeda minima</i> subsp. <i>minima</i>	Nationally Endangered	Regionally Critical	
<i>Chionochloa conspicua</i> subsp. <i>cunninghamii</i>	Not Threatened	Regionally Critical	
<i>Coprosma acerosa</i>	Declining	Serious Decline	✓
<i>Coprosma pedicellata</i>	Not Threatened	Range Restricted	
<i>Coprosma propinqua</i> var. <i>propinqua</i>	Not Threatened	Regionally Vulnerable	
<i>Coprosma tenuicaulis</i>	Not Threatened	Data Deficient	
<i>Corokia cotoneaster</i>	Not Threatened	Sparse	
<i>Corunastylis nuda</i>	Naturally Uncommon	Not listed	
<i>Corunastylis pumila</i>	Naturally Uncommon	Gradual Decline	

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<i>Corybas rotundifolius</i>	Naturally Uncommon	Regionally Critical	
<i>Dactylanthus taylorii</i>	Nationally Vulnerable	Regionally Critical	
<i>Danhatchia australis</i>	Naturally Uncommon	Sparse	
<i>Daucus glochidiatus</i>	Nationally Vulnerable	Regionally Critical	✓
<i>Dichelachne inaequiglumis</i>	Naturally Uncommon	Data Deficient	
<i>Dicksonia fibrosa</i>	Not Threatened	Sparse	
<i>Doodia mollis</i>	Naturally Uncommon	Sparse	
<i>Doodia squarrosa</i>	Naturally Uncommon	Sparse	
<i>Drosera hookeri</i>	Coloniser	Sparse	
<i>Earina aestivalis</i>	Not Threatened	Sparse	
<i>Einadia allanii</i>	Naturally Uncommon	Not listed	
<i>Elaeocarpus hookerianus</i>	Not Threatened	Regionally Critical	
<i>Eleocharis neozelandica</i>	Declining	Regionally Critical	✓
<i>Epilobium chionanthum</i>	Not Threatened	Data Deficient	
<i>Epilobium hirtigerum</i>	Nationally Critical	Regionally Critical	
<i>Epilobium nerteroides</i>	Not Threatened	Serious Decline	
<i>Epilobium pedunculare</i>	Not Threatened	Regionally Endangered	
<i>Epilobium pubens</i>	Not Threatened	Sparse	
<i>Euchiton delicatus</i>	Not Threatened	Data Deficient	
<i>Euphorbia glauca</i>	Declining	Regionally Critical	
<i>Ficinia spiralis</i>	Declining	Serious Decline	✓
<i>Galium propinquum</i>	Not Threatened	Data Deficient	
<i>Gastrodia minor</i>	Not Threatened	Range Restricted	
<i>Geranium potentilloides</i>	Not Threatened	Sparse	
<i>Geranium retrorsum</i>	Nationally Vulnerable	Gradual Decline	
<i>Geranium solanderi</i>	Declining	Gradual Decline	
<i>Glossostigma elatinoides</i>	Not Threatened	Sparse	

<i>Grammitis billardierei</i>	Not Threatened	Range Restricted	
<i>Gratiola sexdentata</i>	Not Threatened	Regionally Critical	
<i>Gunnera dentata</i>	Not Threatened	Range Restricted	
<i>Gunnera monoica</i>	Not Threatened	Data Deficient	
<i>Halocarpus kirkii</i>	Naturally Uncommon	Range Restricted	
<i>Hebe bishopiana</i>	Nationally Vulnerable	Regionally Vulnerable	✓
<i>Hebe obtusata</i>	Naturally Uncommon	Range Restricted	
<i>Hebe pubescens</i> subsp. <i>pubescens</i>	Not Threatened	Regionally Critical	
<i>Hibiscus richardsonii</i>	Nationally Critical	Not listed	
<i>Hydrocotyle pterocarpa</i>	Not Threatened	Data Deficient	
<i>Hymenophyllum armstrongii</i>	Not Threatened	Range Restricted	
<i>Hymenophyllum lyallii</i>	Not Threatened	Range Restricted	
<i>Hypolepis dicksonioides</i>	Naturally Uncommon	Sparse	
<i>Hypolepis lactea</i>	Not Threatened	Sparse	
<i>Ileostylus micranthus</i>	Not Threatened	Regionally Critical	
<i>Ipomoea cairica</i>	Not Threatened	Range Restricted	
<i>Ipomoea pes-caprae</i> subsp. <i>Brasiliensis</i>	Naturally Uncommon	Not listed	
<i>Isolepis distigmatosa</i>	Not Threatened	Data Deficient	
<i>Juncus holoschoenus</i> var. <i>holoschoenus</i>	Nationally Critical	Not listed	
<i>Juncus pauciflorus</i>	Nationally Vulnerable	Regionally Endangered	
<i>Korthalsella salicornioides</i>	Naturally Uncommon	Sparse	
<i>Lagenifera stipitata</i>	Not Threatened	Sparse	
<i>Lepidium oleraceum</i>	Nationally Endangered	Regionally Endangered	
<i>Lepidothamnus intermedius</i>	Not Threatened	Range Restricted	

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<i>Leptinella rotundata</i>	Nationally Vulnerable	Regionally Extinct	✓
<i>Leptinella squalida</i> subsp. <i>squalida</i>	Not Threatened	Regionally Endangered	
<i>Leptinella tenella</i>	Declining	Sparse	
<i>Leptolepia novae-zelandiae</i>	Not Threatened	Data Deficient	
<i>Leptostigma setulosa</i>	Not Threatened	Regionally Endangered	
<i>Libertia micrantha</i>	Not Threatened	Range Restricted	
<i>Libocedrus plumosa</i>	Naturally Uncommon	Sparse	
<i>Lindsaea viridis</i>	Naturally Uncommon	Regionally Critical	
<i>Linum monogynum</i> var. <i>monogynum</i>	Not Threatened	Sparse	✓
<i>Lophomyrtus obcordata</i>	Not Threatened	Regionally Endangered	
<i>Luzula banksiana</i> var. <i>banksiana</i>	Not Threatened	Regionally Critical	
<i>Luzula picta</i> var. <i>picta</i>	Not Threatened	Regionally Endangered	
<i>Manoao colensoi</i>	Not Threatened	Regionally Critical	
<i>Melicytus lanceolatus</i>	Not Threatened	Range Restricted	
<i>Mentha cunninghamii</i>	Declining	Range Restricted	
<i>Metrosideros carminea</i>	Not Threatened	Sparse	
<i>Microlaena polynoda</i>	Not Threatened	Sparse	
<i>Molloybas cryptanthus</i>	Naturally Uncommon	Data Deficient	
<i>Myoporum laetum</i>	Not Threatened	Gradual Decline	
<i>Myosotis pansa</i> subsp. <i>pansa</i>	Nationally Endangered	Regionally Endangered	✓
<i>Myriophyllum robustum</i>	Declining	Regionally Critical	
<i>Myriophyllum votschii</i>	Not Threatened	Range Restricted	
<i>Myrsine divaricata</i>	Not Threatened	Regionally Endangered	
<i>Nematoceras rivulare</i>	Data deficient	Not listed	

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<i>Nestegis cunninghamii</i>	Not Threatened	Regionally Critical	
<i>Nestegis montana</i>	Not Threatened	Sparse	
<i>Olearia albida</i>	Not Threatened	Sparse	
<i>Olearia angulata</i>	Naturally Uncommon	Data Deficient	
<i>Ophioglossum coriaceum</i>	Not Threatened	Sparse	
<i>Ophioglossum petiolatum</i>	Nationally Critical	Regionally Critical	✓
<i>Paspalum orbiculare</i>	Declining	Serious Decline	
<i>Pelargonium inodorum</i>	Not Threatened	Sparse	
<i>Pellaea falcata</i>	Declining	Regionally Critical	
<i>Pennantia corymbosa</i>	Not Threatened	Sparse	
<i>Peraxilla tetrapetala</i>	Declining	Range Restricted	
<i>Petalochilus bartlettii</i>	Naturally Uncommon	Data Deficient	
<i>Picris burbridgeae</i>	Nationally Endangered	Serious Decline	
<i>Pimelea longifolia</i>	Declining	Regionally Endangered	
<i>Pimelea tomentosa</i>	Nationally Vulnerable	Regionally Endangered	
<i>Pittosporum ellipticum</i>	Naturally Uncommon	Sparse	
<i>Pittosporum kirkii</i>	Declining	Regionally Vulnerable	
<i>Planchonella costata</i>	Relict	Gradual Decline	
<i>Plantago raoulii</i>	Not Threatened	Regionally Critical	
<i>Plumatichilos tasmanicum</i>	Nationally Vulnerable	Regionally Critical	
<i>Poa billardiarei</i>	Declining	Regionally Critical	
<i>Pomaderris apetala subsp. maritima</i>	Nationally Critical	Not listed	
<i>Potamogeton ochreateus</i>	Not Threatened	Sparse	
<i>Pseudopanax ferox</i>	Naturally Uncommon	Regionally Endangered	
<i>Pseudowintera colorata</i>	Not Threatened	Sparse	

<i>Pteris comans</i>	Not Threatened	Sparse	
<i>Pterostylis cardiostigma</i>	Not Threatened	Data Deficient	
<i>Pterostylis tasmanica</i>	Nationally Vulnerable	Regionally Critical	
<i>Ptisana salicina</i>	Declining	Gradual Decline	
<i>Ranunculus acaulis</i>	Not Threatened	Regionally Endangered	
<i>Ranunculus macropus</i>	Data Deficient	Regionally Critical	
<i>Ranunculus urvilleanus</i>	Not Threatened	Serious Decline	
<i>Raukaua anomalus</i>	Not Threatened	Range Restricted	
<i>Raukaua edgerleyi</i>	Not Threatened	Regionally Vulnerable	
<i>Rubus squarrosus</i>	Not Threatened	Data Deficient	
<i>Ruppia polycarpa</i>	Not Threatened	Data Deficient	
<i>Rytidosperma clavatum</i>	Not Threatened	Data Deficient	
<i>Scandia rosifolia</i>	Declining	Serious Decline	✓
<i>Schizaea dichotoma</i>	Naturally Uncommon	Sparse	
<i>Schoenus concinnus</i>	Not Threatened	Regionally Critical	
<i>Schoenus nitens</i>	Not Threatened	Regionally Critical	
<i>Scleranthus biflorus</i>	Not Threatened	Regionally Endangered	
<i>Senecio quadridentatus</i>	Not Threatened	Sparse	
<i>Senecio rufiglandulosus</i>	Not Threatened	Regionally Critical	
<i>Senecio scaberulus</i>	Nationally Critical	Regionally Critical	
<i>Sicyos australis</i>	Coloniser	Data Deficient	
<i>Solanum aviculare</i> var. <i>aviculare</i>	Declining	Range Restricted	
<i>Sonchus kirkii</i>	Declining	Regionally Critical	✓
<i>Sophora fulvida</i>	Naturally Uncommon	Range Restricted	
<i>Sophora microphylla</i>	Not Threatened	Sparse	
<i>Sparganium subglobosum</i>	Not Threatened	Regionally Endangered	

<i>Sticherus flabellatus</i> var. <i>flabellatus</i>	Not Threatened	Range Restricted	
<i>Streblus banksii</i>	Relict	Regionally Critical	
<i>Syzygium maire</i>	Not Threatened	Gradual Decline	
<i>Tetragonia tetragonoides</i>	Naturally Uncommon	Regionally Critical	
<i>Thelymitra aemula</i>	Not Threatened	Sparse	
<i>Thelymitra carnea</i>	Not Threatened	Sparse	
<i>Thelymitra formosa</i>	Naturally Uncommon	Regionally Critical	
<i>Thelymitra pulchella</i>	Not Threatened	Data Deficient	
<i>Thelymitra tholiformis</i>	Not Threatened	Sparse	
<i>Thelypteris confluens</i>	Naturally Uncommon	Coloniser	
<i>Tmesipteris sigmatifolia</i>	Not Threatened	Sparse	
<i>Trisetum antarcticum</i>	Declining	Not listed	
<i>Trisetum arduanum</i>	Not Threatened	Gradual Decline	
<i>Tupeia antarctica</i>	Declining	Regionally Critical	
<i>Uncinia laxiflora</i>	Not Threatened	Range Restricted	
<i>Utricularia australis</i>	Nationally Critical	Regionally Critical	
<i>Wahlenbergia littoricola</i> subsp. <i>Vernicosa</i>	Not Threatened	Sparse	
<i>Zoysia minima</i>	Not Threatened	Gradual Decline	

Appendix 9: Results of landscape field assessment

1. Foothills

Overall, there was no identifiable change in the landscape character of the majority of the 18 foothills type landscape units. Of the small changes identified, the majority were the result of localised development. Several landscape units were recorded as having either minor or very minor adverse changes. These included Anamata, Cochran, Driving and Oratia where the changes were from localised development.

In 2012 it was noted that increasing residential development in the foothills brings with it threats to the foothills' character in terms of built elements potentially dominating the natural environment and the more open rural character. In 2017, very few examples of bulky, poorly sited, designed or coloured structures were identified. Generally, they are well integrated into the landscape.

There are a number of new dwellings under construction in Shaw Road as shown in Photograph 1 below.



Photograph 1: Shaw Road with development in the subdivision behind it in 2017

Photograph 2 shows the same view photographed in 2012. Extensive riparian planting has already been undertaken but the colour and finish of the buildings is unknown. These dwellings do have the potential to change the rural character of this landscape unit.



Photograph 2: Shaw Road with open land behind in 2012

Some forms of development that do not require a resource consent, for example the construction of a boundary fence, can have minor adverse effects on the local character of individual landscape units. One such example is the fence on Gum Road shown in photograph 3 below. Its light colour, design and location immediately adjacent to the road mean that it does create very localised adverse effects on the landscape unit as experienced when driving along Gum Road.



Photograph 3: The fence on Gum Road

Another example of a bulky development within the lower foothills that was identified in the 2012 report was on Henderson Valley Road (Anamata). No mitigation for the bulk of the building and its extensive associated earthworks was required as part of the resource consent. The result was a substantial building which dominates its rural setting (and the

adjoining primary school) as shown in photographs 4 and 5 below. Developments of this scale, with little or no mitigation, have the potential to contravene the objective of the Act of ensuring that 'change in a rural landscape maintains a rural character,' s8 (g) (iii).



Photographs 4 and 5: The large house on top of the extensive earthworks on Henderson Valley Road in 2012 and 2017

A positive development in the Holdens landscape unit is the establishment of a vineyard in the old orchard between Parrs Cross Road and Holdens Road. In the 2012 assessment, the removal of the orchard trees was noted, and potential residential development anticipated. The continuation of a horticultural land-use in this area reinforces the rural character of the landscape unit in a positive way.

Similarly, the development of new horticultural activities on Henderson Valley Road in landscape unit Anamata is a positive reinforcement of the rural character of this area, as shown in photograph 6 below.



Photograph 6: New horticultural development in Henderson Valley Road

2. Bush Living

The assessments found very little change in the landscape character of the bush living landscape units. As was identified in 2012, the greatest threat to the landscape character of the bush living landscape units is the loss of vegetation from either subdivision or development. However, if earthworks and vegetation removal are minimised, the bush-clad areas of the bush living units clearly demonstrate they are able to accommodate reasonable population densities with only minor impacts on landscape character.

Some of the more recent, and one or two older, subdivisions within the bush living landscape units clearly display a number of characteristics which undermine the landscape character of those units. These include the use of urban/suburban elements, mostly on public land, such as kerb and channelling, street lighting, retaining walls, concrete paths and other infrastructure.

3. Coastal

Overall, the coastal landscape units displayed little change to their landscape character or effects on the identified heritage features. As was identified in 2012, the greatest threat to the landscape character of the coastal landscape units is the loss of vegetation from development or re-development, particularly coastal pōhutukawa trees.

3.1 Parau

Overall there was very little change in the landscape character of the four Parau landscape units. In 2012 inappropriate urban style roadside treatment of private properties was noted in Parau B. During the 2017 assessment, roadside infrastructure changes in Parau A were identified as having an adverse effect on the landscape character on a local scale. These appear to have been implemented by Auckland Transport in an attempt to manage stormwater run-off along the edge of steep Rauhuia Crescent. This development has led to an inappropriate urban-style solution which, as well as undermining the heritage features of the area has also proved to be inadequately constructed so that rocks designed to act as check dams have largely been removed.

3.2 Huia and Little Huia

The majority of the Huia and Little Huia landscape units show very little change since 2012. Two positive changes were noted in landscape units Huia G and Huia J. In Huia G the road has been resurfaced and the rock retaining wall along the foreshore has been redeveloped. This work has been carried out in a manner that has protected the heritage features in this area.

Similarly, a new house near the top of the hill, which was noted as being under development in the 2012 assessment, has now been completed. The form, height, materials and colour of the building and the associated garden development all ensure that this new house sits comfortably within the landscape unit and does not undermine the heritage features. Photographs 7 and 8 below show the house in 2012 and 2017.



Photographs 7 and 8: Showing the new house in Little Huia in 2012 and 2017

Restoration potential was identified on the neighbouring property as part of both the 2008 and 2012 landscape assessments. Since 2012, the container and bus on the neighbouring property has been supplemented with additional portable buildings, as shown in the Photographs 9 and 10, below. This type of development does not protect or enhance the heritage features of the heritage area, as required by the Act.



Photographs 9 and 10: 2012 and additional buildings in 2017 on Whatipu Road

Similarly, the construction of a new house in Upland Road has had very minor adverse effects on the landscape character of part of Huia E landscape unit. The unusual pyramidal roof form is particularly striking, primarily because of the pale colour it has been finished in. It appears that a second pyramidal form may be about to be erected nearby.

3.3 Karekare

Overall, there was no change identified in the landscape character. Two very minor negative developments identified in 2012 have both been softened by additional plant growth, including one along Karekare Road shown in Photograph 11, below.



Photograph 11: Growth of vegetation integrating development at 64 Karekare Road

Another new development on Karekare Road which, although it sits isolated from the nearest dwelling, settles well into the character of this part of Karekare, as shown in Photograph 12 below. It is noted that vacant lots on either and further along the road could all be developed with additional houses in the future.



Photograph 12: The new dark coloured dwelling on Karekare Road

3.4 Piha

The in-field assessment found only minor and very minor changes to the landscape character of the various units within Piha, but there is development underway which has the potential to undermine the heritage features of Piha.

At the southern end of the village, where the settlement extends to higher slopes, the majority of the steep vegetated land defining the edge of the settlement is in private ownership. Development has begun on one of these sections, as seen in Photograph 13 below. Depending on the design and colour of this new dwelling and any future dwellings on the neighbouring sections, there could be adverse effects on the landscape character of this part of Piha in the future.



Photograph 13: New dwelling under construction on Piha Road

A new driveway on Garden Road in Piha D is shown in Photograph 14 below. The new concrete surface is currently bright, but it will darken with time. The new planting on either side of the road comprises native species which will, with time, successfully integrate this development into this landscape unit.



Photograph 14: The new driveway on Garden Road, Piha

New development is also underway adjacent to the surf club building in Marine Parade South as shown in Photograph 15 below. It is too early in the building process to be certain what effects this development might have on the landscape character and heritage

features of this part of the heritage area. The height of the scaffolding suggests that this may be a substantial building but this part of Piha already has two-storey buildings and, depending on its finished design, this new building may have very little effect on the landscape character and heritage features.



Photograph 15: New development adjacent to the surf club in Marine Parade South, Piha

3.5 Te Henga / Bethells Beach

The multiple landscape units in and around Te Henga / Bethells Beach used in the 2012 assessment have been incorporated into the larger neighbouring units. The residential settlement extending along the west-facing slopes above Bethells Road has been incorporated in the bush living landscape unit Te Aute Ridge because of its vegetated character. The group of larger rural residential properties at the hairpin bend where Bethells Road turns sharply southwards, and the neighbouring wetland have been incorporated into Te Henga / Bethells Beach North, a foothills landscape unit.

The remainder of the Te Henga / Bethells Beach residential areas are incorporated into the large coastal landscape unit Te Henga / Bethells Beach South. This includes the two enclaves of housing around Erangi and McKay Places, the more dispersed residential area around Lake Waiataru, the large sand dune in the Lake Wainamu Scenic Reserve and the regenerating forest around Lake Kawaupaka.

The 2017 assessment found that there was very little change to the landscape character of Te Henga / Bethells Beach South landscape unit. Vegetation growth within the beach reserve has assisted in integrating both the parking area and the buildings.

3.6 Cornwallis

In 2012 it was noted that there were more open areas close to Cornwallis Beach with coastal views from recently completed larger houses. Since that observation the situation has worsened with the removal of at least one of the coastal pōhutukawa trees above the beach to the south of the wharf. This has opened up views of the two larger, more modern houses, stacked one behind the other when viewed from the wharf, as shown in Photographs 16 and 17. Replacement planting of further coastal pōhutukawa within the reserve would mitigate this effect.



Photographs 16 and 17: Houses above Cornwallis Beach seen in 2012 and 2017

3.7 Whites Beach

No identifiable changes were found in this landscape unit.

4. Parkland

The Parkland landscape units display the least amount of change in their heritage features and landscape character. It is anticipated that this will continue to be the trend in the future, with minimal development occurring on publicly owned and protected land.

4.1 Waitākere Ranges Regional Park

Very little development has occurred within the regional park areas and no change to the landscape character or heritage features was observed.

4.2 Te Waharoa

There has been no change to the heritage features and landscape character of this landscape unit since 2012.

4.3 Matuku Bush

No change has occurred to the heritage features or landscape character of this landscape unit since 2012.

5. Summary of findings

See the table below for a summary of findings for each landscape unit.

Landscape Unit Name	Findings
Foothills	
Te Henga / Bethells Beach North	Neutral
Bethells Valley	Neutral
Long Road	Neutral
Anzac Valley	Neutral
Jonkers	Neutral
Awhiorangi	Neutral
Pipeline	Neutral
Waiomoko	Neutral
Paremuka	Neutral
Seibel	Neutral
Hannibal	Neutral

Driving	Neutral
Anamata	Very minor negative
Holdens	Neutral
Oratia	Neutral
Oratia South	Minor negative
Cochran	Very minor negative
La Trobe	Neutral
Bush living	
Te Aute Ridge	Neutral
Cassel	Neutral
Pukematekeo	Neutral
Welsh Hills	Neutral
Turanga	Neutral
Opanuku	Neutral
Potter	Neutral
Scenic Ridge	Neutral
Titirangi	Neutral
Green Bay	Neutral
Symonds	Neutral
Ranges Properties	Neutral
Anawhata	Neutral
Wigmore Bay	Neutral
Aio Wira	Neutral
Coastal	

Te Henga / Bethells Beach South	Neutral
Parau North	Neutral
Parau A	Very minor negative
Parau B	Neutral
Parau South	Neutral
Cornwallis	Very minor negative
Huia A	Neutral
Huia B	Neutral
Huia C	Very minor negative
Huia D	Neutral
Huia E	Minor negative
Huia F	Neutral
Huia G	Neutral
Huia H	Neutral
Huia J	Very minor negative
Karekare A	Neutral
Karekare B	Very minor positive
Karekare C	Neutral
Karekare D	Neutral
Karekare E	Neutral
Piha A	Neutral
Piha B	Neutral
Piha C	Neutral
Piha D	Very minor negative

Piha E	Neutral
Piha F	Neutral
Piha G	Very minor negative
Piha H	Neutral
Piha J	Neutral
Piha K	Neutral
Piha L	Neutral
Piha M	Neutral
Piha N	Neutral
Piha South	Minor negative
Whites Beach	Neutral
Parkland	
Matuku Bush	Neutral
Te Waharoa	Neutral
Regional Parkland	Neutral

Appendix 10: Results from the Dark Sky Assessment

Field coverage of sky quality measurements undertaken

Measurements were taken of key areas that are accessible by car and taken on three separate days across the heritage area.

Sky quality measurements summarised

Data from the measurements consisted of more than 1,300 readings. It was then sorted, cleaned, grouped and analysed. The results, consisting of 350 data points, cover 33 locations (some on multiple occasions). The results are summarised in the table below.

Site number	Site Name	Start Time	Latitude	Longitude	Number of Readings	Mean Measurement (mpsas)
		21-Aug-17				
1	Titirangi Village	7:44 p.m.	-36.9378	174.6570	5	17.85
2	Scenic Drive	7:55 p.m.	-36.9466	174.6146	6	19.96
3	Arataki Visitor Centre Entrance	7:58 p.m.	-36.9464	174.6079	18	20.04
4	Anawata Road Turnoff	8:14 p.m.	-36.9454	174.5266	3	20.51
5	Karekare Beach Carpark	8:29 p.m.	-36.9863	174.4792	15	20.65
6	Piha Beach Lookout	8:43 p.m.	-36.9628	174.4736	6	20.55
7	North Piha Sand Dunes	8:51 p.m.	-36.9514	174.4680	15	20.37
8	South Piha	9:01 p.m.	-36.9576	174.4682	9	20.22
9	Anawata Road Turnoff	9:20 p.m.	-36.9454	174.5265	10	19.94
		22-Aug-17				

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1	Ranui, Swanson	7:44 p.m.	-36.8640	174.6018	8	15.68
2	Bethells Beach Car Park	8:10 p.m.	-36.8910	174.4491	26	20.66
3	Bethells Village	8:23 p.m.	-36.8875	174.4502	8	20.7
4	Bethells Waitākere township junction	8:37 p.m.	-36.8674	174.5048	12	20.51
5	Arataki Visitor Centre nearby	8:50 p.m.	-36.8907	174.5458	21	20.36
6	Scenic Drive	9:04 p.m.	-36.9239	174.5559	8	20.45
7	Karekare Beach Carpark	9:31 p.m.	-36.9862	174.4792	15	20.89
8	Piha Beach Lookout	9:45 p.m.	-36.9628	174.4735	7	20.93
9	North Piha Sand Dunes	9:52 p.m.	-36.9518	174.4682	15	20.96
10	South Piha	10:02 p.m.	-36.9577	174.4682	14	21.01
11	Anawata Road Turnoff	10:21 p.m.	-36.9454	174.5266	12	20.88
12	Arataki Visitor Centre Entrance	10:35 p.m.	-36.9464	174.6081	12	20.48
		25-Aug-17				
1	Titirangi Village	7:45 p.m.	-36.9378	174.6569	10	14.63
2	Cornwallis Wharf launching point	8:07 p.m.	-37.0119	174.6052	8	20.37
3	Huia Point	8:18 p.m.	-37.0092	174.5756	7	20.47
4	Huia Viewing Point	8:28 p.m.	-37.0100	174.5626	6	20.55
5	Whatipu Turnoff after the bridge	8:33 p.m.	-37.0170	174.5583	8	20.54
6	Whatipu Carpark near Lodge	8:54 p.m.	-37.0394	174.5077	11	20.79
7	Road out of Little Huia	9:11 p.m.	-37.0203	174.5437	12	20.84

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8	Little Huia turnoff from Whatipu	9:21 p.m.	-37.0173	174.5586	14	20.73
9	Little Huia Ranger Station	9:28 p.m.	-37.0135	174.5601	4	20.28
10	Near Huia Settlers Museum	9:31 p.m.	-37.0044	174.5621	7	20.75
11	Huia Point	9:40 p.m.	-37.0092	174.5756	8	20.74
12	Nihotupu Dam	9:52 p.m.	-36.9635	174.6149	10	20.42
				33		
					350	
						20.14
						20.55

Appendix 11: Recorded events in local parks and reserves

Type of event	Location	Year					Name of event*
		2014	2015	2016	2017	2018**	
Wedding	Piha Beach	1	1	2	3	2	
	French Bay Esplanade	8	7	5	4	1	
	Armour Bay			1		1	
	Titirangi Beach	1		1	1		
	Te Henga (Bethells Beach)	11	4		2		
	Waitākere War Memorial Park	1					
	Paturoa Bay				1		
	Tangiwai Reserve				1		
	O'Neill Beach				1	1	
Surf Life Saving	Piha Beach	3	5	2	1	1	<ul style="list-style-type: none"> • Piha Classic Wave Surfboat Competition • Billabong Grom series • National scholastic surf championship • ANZAC
Community Events	Piha Beach	2	5	6	2		<ul style="list-style-type: none"> • West Coast Arts Festival • Surface Movements • NZ Police National Summer Road Safety Campaign • Kiwi's against seabed mining • Expedition South
	Piha Domain	2	2	2	3		<ul style="list-style-type: none"> • Piha Library car boot fair • Aotearoa Surf film festival • Spring Fling Fiesta • ANZAC • Sustainable Coastlines
	Huia Domain	1		2	4		<ul style="list-style-type: none"> • Huia Domain Community Consultation • Music in Parks • Head2Head

STATE OF THE WAITĀKERE RANGES HERITAGE AREA 2018

	Les Waygood carpark (Piha)		2	1	1		<ul style="list-style-type: none"> • Piha Preschool Market Day
	Titirangi Road		1	2	1	1	<ul style="list-style-type: none"> • Titirangi Glow • ANZAC
	Te Henga/Bethells	2	5	2	2	1	<ul style="list-style-type: none"> • Speight's West Coaster • The Bethells Beach Community Day
	Olive Grove Reserve		1				<ul style="list-style-type: none"> • Olive Grove Planting Day
	Waitākere War Memorial Park		1	1	1		<ul style="list-style-type: none"> • Bigfoot Adventures for school camp • ANZAC • Neighbours Day Aotearoa
	Rahui Kahika Reserve		1				<ul style="list-style-type: none"> • Tunes for Trees working bee
	Armour Bay		1	2	1	1	<ul style="list-style-type: none"> • Unitec early learning Christmas Party
	Titirangi War Memorial carpark			1	1		<ul style="list-style-type: none"> • Celebrating nature of Titirangi Village • ANZAC
	Little Muddy Creek				1		<ul style="list-style-type: none"> • Opening ceremony (of walkway)
	Arataki Visitor Centre				1		<ul style="list-style-type: none"> • Arataki Kids Day
	Waima Reserve	1	1				<ul style="list-style-type: none"> • Learning Edge Montessori Preschool Sports Day
Private Events	Armour Bay	1	2				<ul style="list-style-type: none"> • Te Whanau o Waipariera Picnic • Birthday
	Waima Reserve	1					<ul style="list-style-type: none"> • Birthday
	Olive Grove Park		1				<ul style="list-style-type: none"> • Birthday
Totals		35	40	30	32	9	
* Name of event and number of events do not match as some of the events are part of a series							
** Figures as up to March 2018.							

Appendix 12: Census information

Note: Figures for the 2006 Census data have been taken directly from the 2013 Monitoring Report. In some cases, the totals are greater than 100% and the assumption is that the figures were rounded up.

Community Profile	2006 Census data	2013 census data	Regional data comparisons 2006-2013	Key changes or differences
Resident Population	19,968	20,434	This is a 2.3% increase in the heritage area compared to the Auckland Region's 8.5% increase over the same period	Slow growth of the heritage area resident population
Ethnicity	<ul style="list-style-type: none"> • 85% European • 8% Māori • 2% Pacific • 3% Asian • 2% Other 	<ul style="list-style-type: none"> • 82% European • 8% Māori • 3% Pacific • 4% Asian • 3% Other 	82% European 8% Māori 3% Pacific 4% Asian 3% Other	European people continue to be over represented when compared to the regional population
Age Structure	<ul style="list-style-type: none"> • 23% 0-14 Years • 15% 15-29 • 55% 30-64 • 7% 64 + Median Age 37 years	<ul style="list-style-type: none"> • 21% 0-14 Years • 15% 15-29 • 54% 30-64 • 10% 64+ Median Age 40.6 years	Median Age 2013 35.1 years	The age profile of people in the heritage area is one of an increasing age when compared to the regional median
Households	<ul style="list-style-type: none"> • 7041 Households • 78% one family Households • 16% one- 	<ul style="list-style-type: none"> • 7275 Households • 77% one family Households • 17% one-person 	Average Household size in the Auckland region in the 2013 Census was 3.0	While the Auckland Region household size has been rising, the heritage area has

	<p>person Households</p> <ul style="list-style-type: none"> • 5% multi-family/multi person households • 2.82 people per average household 	<p>Households</p> <ul style="list-style-type: none"> • 6% multi-family/multi person households • 2.81 people per average household 	<p>persons per household</p>	<p>remained static</p>
Median Household Income	<p>\$77,603 income per median household</p>	<p>\$92,600 income per median household</p>	<ul style="list-style-type: none"> • 2006 Regional average income: \$63,387 • 2013 Regional Average income: \$65,000 	<p>A marked increase in household income over the 2012-2017 period above the regional average income</p>
Qualification levels	<ul style="list-style-type: none"> • 14% of people aged 15 years and over had no qualification • 23% of people had qualifications equivalent to a bachelor degree or above 	<ul style="list-style-type: none"> • 16% of people aged 15 years and over had no qualification <p>29% of people had qualifications equivalent to a bachelor degree or above</p>	<p>In the Region in 2006, 20% of people over 15 years had no qualification.</p> <p>In the Region in 2013, 17% of people over 15 years had no qualification</p> <p>In the Region in 2013, 25% of people had qualifications equivalent to a bachelor degree or above</p>	<p>The no qualification level has seen an increase in levels in contrast with the Regional figure which has reduced</p> <p>A split in educational attainment appears to be emerging in the heritage area population between those who are well qualified and those with no</p>

				qualifications
Occupations	<ul style="list-style-type: none"> • 51% of people's total jobs were as managers or professionals • 16% of people's total jobs were as sales workers, machine operators and labourers • 34% of people's total jobs were as community and personal service workers and technicians and trade workers 	<ul style="list-style-type: none"> • 53% of people's total jobs were as managers or professionals • 14% of people's total jobs were as sales workers, machine operators and labourers • 33% of people's total jobs were as community and personal service workers and technicians and trade workers 		Occupation categories of people in the heritage area have remained stable
Economic Profile		*Data from Business Demographics Survey 2016, Dept. of Statistics		

Appendix 13: Community and environmental groups and their initiatives

Environmental Groups	Notes on changes between 2012 and 2017
Waitākere Ranges Heritage Area wide	
EcoMatters Environment Trust	native plant nursery (new) Facilitation/coordination of weed control at Little Muddy Creek and Te Henga / Bethells Beach New - Weed control buffer zone at Henderson Valley, Waiatarua, Oratia and Laingholm Climbing asparagus programme Piha, Karekare and Huia (new) Love Your Lagoon (new) Love your Place awards (new) Love Your Neighbourhood grants (new) Weed bin programme War on Weeds campaign
Environmental Defence Society	No significant change
Conservation Volunteers New Zealand	No significant change
Friends of Arataki	Completed the pou whenua programme across the Waitākere Ranges in collaboration with Te Kawerau ā Maki and Auckland Council. Annual Kids Day Out at Arataki Visitor Centre.
Gecko Trust	Training/workshops on weed control and ecological restoration, coordination of Titirangi village weed project, South Titirangi Neighbourhood Network
Kauri Rescue	New - Engagement of landowners in citizen science for the treatment of kauri dieback disease
North West Wild Link Partnership Group	No significant change
Operation Possum Blitz	No significant change
Royal Forest and Bird Society (Waitākere Branch)	No significant change

Sustainable Coastlines	Support for coastal clean-up events, educational programmes, public awareness campaigns and riparian planting projects
The Tree Council	Advocacy around tree protection, publications
Waitākere Ranges Conservation Network	Networking, events, workshops, Facebook presence (new)
Waitākere Ranges Protection Society	No significant change
Hector and Maui Dolphin Defenders	No significant change
Oratia	
Oratia Pest and Weed Control Project	New in August 2017
Waiatarua	
Waiatarua Weed Action Group	New weed control, participate in Buffer Zone programme
Henderson Valley/Opanuku	
Project Twin Streams - Opanuku Stream	No significant change
Titirangi	
Otitori Sanctuary Project	New possum, rat and mustelid control in South Titirangi
South Titirangi Neighbourhood Network	New (Nov 2016) Weed and pest animal control and restoration work on private and public land in South Titirangi. Goal of a weed-and pest-free peninsula by 2022.
Titirangi Village Restoration Project	New rubbish removal and weed control and planting to beautify bushes at the edges of Titirangi Village. Collaboration between local businesses, residents, Gecko Trust with funding from LB.
Muddy Creeks Waima/Woodlands Park/Laingholm/Parau	
Waima to Laingholm Pest Free Zone	New pest animal trapping from Laingholm to Waima/Scenic Drive (possum, stoat and rat trapping) on private and public land.

Little Muddy Creek/Gill Esplanade	New Little Muddy Creek bank restoration.
Owens Green/Muddy Riders Club	No significant change
Waituna Action Group	Weed eradication and planting on Waituna Reserve. Completion of the Little Muddy Creek Walkway between Grendon Road Titirangi, through to Landing Road and Tangiwai Reserve and along Huia Road to Woodlands Park. (November 2017)
Cornwallis/Huia/Whatipu	
Friends of Whatipu	Beach clean-ups, tree planting, seed collection, walks and talks, bioblitz October 2017. 40 scientists note biota.
Huia Weed Warriors	No significant change
Cornwallis Petrel Heads	New weed eradication at Cornwallis Peninsula
Piha/Karekare/Anawhata	
Beach Road Sustainable Neighbourhood	No significant change
La Trobe Forest Ecosystem Restoration Project	No significant change
Lone Kauri Forest Restoration Group	No significant change
Piha Coast Care Group	No significant change
Protect Piha Heritage	New Pest Free Piha strategy in planning in 2017
Te Henga / Bethells Beach / Waitākere Valley	
Ark in the Park	No significant change
Ark in the Park Buffer Zone	New expansion of support to landowners for rats, mustelids and possum in the lower part of Waitākere Valley and at Te Henga / Bethells Beach.
Bethells/Te Henga Beach	No significant change

Care Group	
Forest Ridge Community Group	No significant change
Matuku Link	New Purchase of 37ha Matuku Link property in 2016 Rat and mustelid trapping, weed control.
Matuku Reserve	No significant change
Swimmable Waterways Te Henga	New monitoring, actions and advocacy to achieve clean swimmable Te Henga / Bethells Beach lagoon and healthy network of waterways and wetland.
Te Henga (Bethells Beach) dotterel protection programme	No significant change
Te Henga Track Environmental Group	New Pest plant and animal control and track maintenance along the Te Henga Track (Department of Conservation Community Fund 2016-2017).
Te Henga (Bethells Beach) weed control projects	No significant change
Habitat Te Henga	New mustelid control around the wetland. Release of pateke. Wetland biodiversity monitoring.
Steam Hauler Track residents	No significant change
Waitākere Rivercare	No significant change
Waitākere Valley Trails Group	Newly set up to develop a trail in Te Henga / Bethells Beach to make it safe for local residents to walk to and from Bethells Beach and elsewhere in the area. Stage 1 section: Mosquito Alley to Waiti Stream bridge under design and seeking approvals October 2017.
Swanson	
Swanson Sustainable Neighbourhood	New pest plant and animal control on properties along Awhiorangi Promenade, Awhiorangi Reserve.

Appendix 14: Community facilities

Facility	Address	Ownership	Management	Changes 2008-2012	Changes 2012-2017
Titirangi					
Titirangi Library	500 South Titirangi Rd	Auckland Council	Auckland Council	Upgrades in 2009-10	
Titirangi War Memorial Hall	500 South Titirangi Rd	Auckland Council	Auckland Council		Fire in August 2017 damaged the roof
Titirangi Community House	500 South Titirangi Rd	Auckland Council	Community House Incorporated Society		
Paturoa Bay Hall	Titirangi Beach	Auckland Council land Paturoa Residents and Ratepayers building	Paturoa Bay Residents and Ratepayers		
Titirangi Primary School Hall	Atkinson Rd, Titirangi	Ministry of Education	School	Recently refurbished (leaky building), limited community use	
Lopdell House	418 Titirangi Rd	Auckland Council Leased by Lopdell House Society	Lopdell House Society	Major upgrades 2012-13	
Titirangi Returned Services Association	502 South Titirangi Rd	Titirangi RSA	Titirangi Returned Services Association		
French Bay Yacht Club	Otitori Bay Road	Auckland Council (land),	French Bay Yacht Club		New rigging deck 2017

		French Bay Yacht Club building			
Laingholm					
Laingholm Hall	69 Victory Road	Auckland Council	Laingholm District Citizen Association	Internal refurbishment in 2011	Internal works and re-roofing following fire in 2014
Ex Doctors Room	4 Lookout Dr	Auckland Council	Laingholm Roundabout		Internal Health and Safety improvements in 2016
Laingholm Primary School Hall and community room	54 Victory Road	Ministry of Education	School	Opened in 2009	
Laingholm Fishing Club	Sandy's Parade	Auckland Council (land)	Laingholm Fishing Club		
Muddy Creek Riders	Owens Green Reserve	Auckland Council	Muddy Creek Riders		
Baptist Church Hall and cottage	1 Victory Road	Baptist Union of New Zealand	Baptist Church		
Woodlands Park					
Woodlands Park Primary School Hall	Woodlands Parks Road	Ministry of Education	Woodlands Park School		
Huia					
Huia Hall	1258 Huia Road	Auckland Council (land), Residents and Ratepayers (building)	Huia Residents and Ratepayers Association		
Huia Fishing	48 Foster	Foster Bay	Huia Fishing		

Club	Ave	Residents Association	Club		
Karekare					
Surf Lifesaving Club	34 Watchmans Road	Karekare Surf Lifesaving Patrol Inc.	Surf Lifesaving Club	Plan for new Club House	
Piha					
Barnett Hall	2 North Piha Road	Piha Community Centre Society	Piha Community Centre Society		
North Piha Surf Lifesaving Club	4 North Piha Road	United Surf Lifesaving Club	North Piha Surf Lifesaving Club		
Piha Surf Life Saving Club	23 Marine Parade	Piha Surf Life Saving Club	Piha Surf Life Saving Club		
Piha RSA	3 Beach Valley Road	Piha Memorial RSA	Piha RSA		
Piha Bowling Club	Piha Domain	Auckland Council (land)	Piha Bowling Club	Plan for combined Bowling and Tennis Club facility	
Piha Tennis Club	Piha Domain	Auckland Council (land)	Piha Tennis Club	Plan for combined Bowling and Tennis Club facility	
Piha Community Library	25 Seaview Road, Auckland Domain	Auckland Council (land)	Piha Community Library Trust		
Te Henga / Bethells Beach					
Bethells Beach Surf Life Saving	Te Henga / Bethells Beach	Auckland Council (land)	Bethells Beach Surf Life Saving Club		Lease for storage container

Club					
Waitākere Golf Club	Falls Road	Auckland Council (land)	Waitākere Golf Club		
Waitākere township					
Waitākere Hall	37 Township Road	Waitākere Hall Trustees	Waitākere Residents and Ratepayers		
Waitākere Domain Hall	Bethells Road	Auckland Council (land)	Waitākere Residents and Ratepayers		
Waitākere Primary School Hall	10 Bethells Road	Ministry of Education	Waitākere Primary School	New school hall opened in 2006	
Waitākere RSA	39 Township Road	Waitākere RSA	Waitākere RSA		
Swanson					
Swanson Station meeting room	760 Swanson Road	Auckland Council	Swanson Railway Station Trust		
St Mark's Church Hall	705 Swanson Road	St Mark's Anglican Church	St Mark's Anglican Church		
Swanson School Hall	703 Swanson Road	Ministry of Education	Swanson Primary School		
Swanson RSA	663 Swanson Road	Swanson Memorial RSA	Swanson RSA		
Henderson Valley					
Henderson Valley School Hall	389 Henderson Valley Road	Owned by Henderson Valley Trust	Henderson Valley School		
Henderson Valley Pony Club	201A Henderson Valley Road	Auckland Council	Henderson Valley Pony Club		

Oratia					
Oratia District School Hall	552 West Coast Road	Ministry of Education and BOT of Oratia District School	Oratia District School		
Oratia Small Hall	569 West Coast Road	Auckland Council	Oratia Residents and Ratepayers		
Oratia Settlers Hall	569 West Coast Road	Auckland Council	Oratia Residents and Ratepayers	Recent refurbishment of bathrooms	
Oratia Bowling Club	515 West Coast Road	Oratia Bowling Club	Oratia Bowling Club		
Waiatarua					
Waiatarua Community Hall	911 West Coast Road	Auckland Council	Waiatarua Residents and Ratepayers		
Arataki Visitor Centre	Scenic Drive	Auckland Council	Auckland Council		

Appendix 15: List of published books, reports and articles related to the heritage area

Books

Exhibition Drive: 100 years of making the grade / Fiona Drummond 2016

Atkinson Park and life at Paturua Bay: 1910-1980: a history of Atkinson Park and the Titirangi Beach community in Titirangi, West Auckland / Lynnette Sollitt-Morris – 2015

Voices from the surf: 80 years of the Karekare Surf Lifesaving Club, 1935-2015 / 2015

Maori in Te Huia, Bruce and Trixie Harvey, Huia Settlers Museum Trust, 2015

Walking the Waitākere Ranges: 45 coastal and bush walks / Alison Dence & Lee-Anne Parore 2014

Wild Westie: the incredible life of Bob Harvey / Hazel Phillips 2014

Saving the ranges: the first 40 years of the Waitākere Ranges Protection Society / Trixie and Bruce Harvey 2013

Turuki turuki! Paneke paneke!: tales of the twin streams / Project Twin Streams 2013

On the radar: the story of Piha's World War 2 radar station / Sandra Coney 2013

Untamed coast: Auckland's Waitākere ranges and heritage area / Bob Harvey 2012

The Piha story / Mary D. Woodward 2012

Council Reports

Kauri Dieback Report 2017: An investigation into the distribution of kauri dieback, and implications for its future management, within the Waitākere Ranges Regional Park. June 2017

Worst weeds in the Waitākere Ranges Heritage Area and how to control them – 2016

Local area plan: Te Henga (Bethells Beach) and the Waitākere River Valley: Waitākere Ranges Heritage Area: draft / 2015

Waitākere Ranges Local Board Plan / 2014

Waitākere Ranges heritage area monitoring report / 2013

Waitākere Ranges Visitor Management Plan: Background Report, April 2013 -

<http://www.waitakereranges.org.nz/pdf/waitakererangesvisitorsmanagementplanbackgroundreport-snap150913.pdf>

The Muddy Creeks plan: local area plan for Parau, Laingholm, Woodlands Park and Waimā : Waitākere Ranges Heritage Area : draft / 2013

Auckland Council District Plan (Waitākere Section): decision on submissions to Proposed Plan Change 32 - Penihana North (Plan change 32) ; Auckland Council Regional Plan :

air, land and water : decision on submissions to Proposed Change 1 - extension to the Urban Air Quality Management Area, Penihana North (Change 1) / 2012

Spragg monument, Kaitarakihi Park, Cornwallis Park, Auckland: heritage assessment / 2012

Whare Puke: Huia Dam No. 9 Dwelling conservation plan / prepared by Reynolds & Associates / 2012

Auckland Council Research Investigations and Monitoring Unit (RIMU) publications

Waitākere Ranges Local Board economic overview / ATEED, 2016

Waitākere economic profile / Infometrics, 2015

Demographic report card - Waitākere Ranges Local Board, 2014

Freshwater report card - Waitākere Ranges, 2014

Soil report card - Waitākere Ranges, 2014

Terrestrial report card – Waitākere, 2014

Local board 2013 census profile: Waitākere Ranges, 2014

Education snapshot: Waitakere Ranges / COMET, 2012

Changes in Indigenous Ecosystems and the Environment within the Boundary of the Waitākere Ranges Heritage Area Act 2008: 2008-2013 Report. October 2013 Technical Report 2013/003

Auckland Transport

Waitākere Ranges Urban Design Guidelines 2016 - <https://at.govt.nz/about-us/have-your-say/waitakere-ranges-urban-design-guidelines/>

Watercare

Report to the Board of Watercare Services Limited - Site Selection for Replacement of Huia Water Treatment Plant, 30 May 2017

<https://www.watercare.co.nz/CMSPages/GetAzureFile.aspx?path=~\watercarepublicweb\media\watercare-media-library\huia\boardreportsiteselectionforreplacementofhuiawtp.pdf&hash=8e6fd802490be10fc1cf5497483a2beb908aa24949d50b27789912303c911d88>

Ranges Ratepayers demand Watercare Plant review, 6 April 2017 -

<http://www.scoop.co.nz/stories/AK1704/S00161/ranges-ratepayers-demand-watercare-plant-review.htm>

Western water supply strategy – Huia Water Treatment Plant, February 2017 -

http://www.waitakereranges.org.nz/pdf/Western%20Water%20Supply%20Huia%20Water%20Replace_10_02_17_RevEMAIL.pdf

Huia Water Treatment Plant Site Selection Study: Shortlist Site Development Report, GHD for Watercare, September 2016

https://www.watercare.co.nz/CMSPages/GetAzureFile.aspx?path=~\watercarepublicweb\media\watercare-media-library\huia\ghd_huia_wtp_shortlist_site_development_report.pdf&hash=158531cfbeff9625fa01039f8e83ee4fbd50914e47e04ff972238c46828d192d

Huia Water Treatment Plant: Report on Longlist Options, Tonkin & Taylor for Watercare, June 2016

https://www.watercare.co.nz/CMSPages/GetAzureFile.aspx?path=~\watercarepublicweb\media\watercare-media-library\huia\tonkinandtaylor_longlist_report_24_06_16_v3.pdf&hash=2da3bd00b7b12094fb3e42940602ee3a285e64501ecbe03bf054fdff2074e8f9

Huia Water Treatment Plant Upgrade Implementation Strategy, MWH for Watercare, November 2013

https://www.watercare.co.nz/CMSPages/GetAzureFile.aspx?path=~\watercarepublicweb\media\watercare-media-library\huia\huia_upgrade_implementation_strategy.pdf&hash=df21a8495866829779690f9afb7f391fc8709edfeef85e8162843cb0ac95be94

Ratepayers and Residents Associations

Submission to the Local Government and Environment Select Committee on the Local Government Act 2002 Amendment Bill by the Titirangi Ratepayers & Residents Association, June 2012

<https://www.parliament.nz/resource/0000202024>

Articles

Piha: In the Footsteps of a Legend, NZ Today; Apr/May2017, Issue 73, p70-77

<http://nztoday.co.nz/in-the-footsteps-of-a-legend/>

Oratia, mon amour, Gash, Graeme, Metro (NZ), May/Jun2017, Issue 411

<http://www.noted.co.nz/life/life-in-nz/oratia-mon-amour-how-a-community-fought-back-against-watercare/>. For more than a century, a tranquil valley in West Auckland has been home to generations of the Gash family. Now, plans for a major water-treatment plant have put their piece of paradise, and the properties of 100 other people, in peril

Waitākere Ranges Regional Park, NZ Today; Jun/Jul2016, Issue 68, p42-47

The Wilds of Auckland, Warne, Kennedy, National Geographic Traveller, Feb/Mar2016, Vol. 33, Issue 1

Hillary's Other Steps, Harvey, Bob, Metro (NZ) Mar2013, Issue 371

A trip in Titirangi, Barton, Chris, Metro (NZ) Jan/Feb2015, Issue 390

Appendix 16: Summary of key interrelationships between supporting legislation and historic heritage within the heritage area

The purpose of the Waitākere Ranges Heritage Area Act (the Act) is to promote the protection and enhancement of its heritage features for present and future generations including historic heritage. The Act is supported by several other key pieces of legislation, such as the following:

- Resource Management Act 1991 (RMA)
- Heritage New Zealand Pouhere Taonga Act 2014 (HNZPT Act) (formerly Historic Places Act 1993)
- Reserves Act 1977
- Conservation Act 1987
- Each of these has requirements to manage New Zealand's historic heritage/historic resources, in particular the RMA and HNZPT Act.

Extracts from the historic heritage technical report explaining the heritage requirements of the RMA and HNZPT Act are included below.⁸³

Resource Management Act 1991

The RMA provides for the sustainable management and protection of the natural and cultural environment. The RMA is the primary legislation that provides the mandate for local authorities to manage historic heritage resources. Sections 6 (e) and (f) of the RMA recognises matters of historic heritage as having national significance and provides for the protection of such heritage from inappropriate subdivision, use and development. By definition, historic heritage includes those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, this includes historic sites, structures, places and areas; archaeological sites; and sites of significance to Māori. Under the RMA, local authorities have the responsibility to identify significant heritage areas, places, and objects in district plans and to provide an appropriate level of protection and management of these resources through associated rules and regulations.⁸⁴

The responsibility of local authorities' for managing adverse effects on heritage arise as part of policy and plan preparation and the resource consent processes. Local authorities have a duty to gather information and monitor the state of the environment in the region or district (s.35 of the RMA). Knowing the state of the historic heritage resources in regions, districts and the coastal marine area is important and should be monitored and addressed in the state of the environment report. As owners of heritage places (e.g. buildings, parks,

⁸³ Waitākere Ranges Historic Heritage Monitoring Report, Auckland Council Heritage Unit, April 2013. Note: the information on the HNZPT Act has been updated to reflect the amendments to this act.

⁸⁴ Plowman 2010

reserves, infrastructure, and archaeological sites) local authorities must meet relevant statutory requirements and comply with plan rules for land they own and administer. Local authorities should set a good example for heritage management in the district or region by ensuring that their own assets have been researched and evaluated for their heritage values and are managed in accordance with conservation principles.⁸⁵

Heritage New Zealand Pouhere Taonga Act 2014 (previously Historic Places Act 1993)

The Heritage New Zealand Pouhere Taonga Act 2014 (HNZPT Act) protects all archaeological sites whether recorded or not, and they may not be damaged or destroyed unless an authority to modify an archaeological site has been issued by Heritage New Zealand Pouhere Taonga. An archaeological site is defined by section 6 of the HNZPT Act as:

any place in New Zealand, including any building or structure (or part of a building or structure), that—

- (i) was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where the wreck occurred before 1900; and
- (ii) provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand; and includes a site for which a declaration is made under section 43(1).

Heritage New Zealand Pouhere Taonga is also required to establish and maintain the New Zealand Heritage List/Rārangi Kōrero. The purpose of this list is:

- to inform members of the public about historic places, historic areas, wāhi tūpuna, wāhi tapu, and wāhi tapu areas:
- to notify the owners of historic places, historic areas, wāhi tūpuna, wāhi tapu, and wāhi tapu areas, as needed, for the purposes of this Act:
- to be a source of information about historic places, historic areas, wāhi tūpuna, wāhi tapu, and wāhi tapu areas for the purposes of the Resource Management Act 1991.⁸⁶

Inclusion in the Heritage New Zealand List/Rārangi Kōrero does not of itself protect these places but assists in protection by notifying property owners and the public of their significance. Additionally, local authorities are required to have regard to entries in the register when developing district and regional plans. Regulations and criminal provisions of statutes may also be easier to apply to registered places.

⁸⁵ Heritage Management Guidelines for Resource Management Practitioners 2004. Published by New Zealand Historic Places Trust.

⁸⁶ Section 65(3), HNZPT Act

Reserves Act 1977

The purpose of the Reserves Act is to provide for ‘...the preservation and management for the benefit and enjoyment of the public, areas of New Zealand possessing ... natural, scenic, historic, cultural, archaeological... or other special features or value’ (Section 3(1)(a)).

The Regional Parks Management Plan (2010) was prepared as a fulfilment of requirements under the Reserves Act 1977 and the Local Government Act 1974. It applies to regional parks across Auckland and specifically for the Waitākere Ranges Regional Park.

It includes specific management policies relating to historic heritage including:

- re-survey and update information on archaeological sites on the park and implement the archaeological site management actions identified in the CHI;
- interpret significant heritage stories, including people, places, milestones and events, in accordance with the Regional Parks Interpretation Strategy and Interpretation Guidelines;
- prepare and implement a conservation assessment of the Piha Tramway that runs from Anawhata Stream in the north to Paratutai in the south;
- acknowledge the land formerly held as part of the Auckland Centennial Memorial Park on park interpretation and signs.⁸⁷
- The Regional Parks Management Plan (2010) also includes specific management policies relating to tangata whenua. These include:
 - undertake a comprehensive human occupation report of the park, an assessment of tangata whenua values and a tupuna whenua report (tangata whenua identifying their relationship to the land)
 - in accordance with the Waitākere Ranges Heritage Area Act recognise Ngāti Whātua and Te Kawerau ā Maki as tangata whenua of the Waitākere Ranges Regional Park
 - ensure senior staff responsible for managing the park meet at least once a year with Ngāti Whātua and Te Kawerau ā Maki appointed kaitiaki (representatives) to discuss the annual work programme and the actions outlined in Part 9.⁸⁸

Under the Waitākere Ranges Heritage Area Act 2008 a regional park management plan must be prepared for the Waitākere Ranges Regional Park every 10 years which means the current 2010 management plan should be reviewed in the next two years.

This will provide an opportunity to review whether the various heritage related objectives and policies are achieving the intended outcomes and whether they are still appropriate. It may also provide an opportunity to incorporate new heritage management and maintenance plans as recommended through the archaeological survey findings.

⁸⁷ Tatton, K. January 2015. Stage 1A – Historic Heritage Data Collation, Review and Rationalisation: Survey and Monitoring Program Report (Draft), Prepared for Auckland Council.

⁸⁸ Tatton, K. January 2015. Stage 1A – Historic Heritage Data Collation, Review and Rationalisation: Survey and Monitoring Program Report (Draft), Prepared for Auckland Council.

Appendix 17: Summary of water supply related designations held by Watercare

AUP No.	Designation Name	Purpose	Location/Address
9317	Swanson Reservoirs (Scenic Drive North)	Water supply purposes - reservoirs and associated structures.	893 and 895 Scenic Drive North, Swanson
9318	Titirangi Reservoir (Scenic Drive)	Water supply purposes - reservoir and associated structures.	272A Scenic Drive, Titirangi
9319	Bush Road Reservoirs	Water supply purposes - reservoirs and associated structures.	19 Bush Road, Waiatarua
9320	Huia Road Reservoir	Water supply purposes - reservoir and associated structures.	1076A Huia Road, Huia
9321	Waitākere Ranges Headworks Areas	Water supply purposes - headworks areas	Waitākere Ranges
9322	Waitākere Ranges Catchment Headworks Service Land	Water supply purposes - catchment headworks service land.	Waitākere Ranges
9323	Waitākere Water Treatment Plant	Water supply purposes - water treatment plant and associated structures.	105-121 Christian Road, Swanson and 21 Long Road, Bethells
9324	Huia and Nihotupu Water Treatment Plants	Water supply purposes - water treatment plants and associated structures.	Woodlands Park Road, Manuka Road and Exhibition Drive, Titirangi
9326	Titirangi Reservoir (Konini Road)	Water supply purposes - reservoir and associated structures.	166-176 Konini Road, Titirangi
9332	Titirangi Pump Station (Wood Bay Beach Reserve)	Wastewater purposes – pump station and associated structures	Wood Bay Beach Reserve in vicinity of 81 Wood Bay Road, Titirangi
9333	Wastewater Purposes - Wastewater Pumping Station,	Wastewater purposes – pump station and associated structures.	Road reserve adjoining 172A Laingholm Drive, Laingholm

Maps of key areas designated for water catchment and supply purposes.

<p>Designations – 9321, Water Supply Purposes – Water Catchment Headworks Areas Waitakere Ranges</p>	<p>Designations – 9322, Water Supply Purposes – Headworks Service Land Waitakere Ranges</p>
<p>Designations – 9323, Water Supply Purposes – Waitakere Filter Station Location: 105-121 Christian Road, Swanson and 21 Long Road, Bethells</p>	<p>Designations 9324, Water Supply Purposes – Huia and Nihotupu Filter Stations, Woodlands Location: Woodlands Park Road, Manuka Road and Exhibition Drive, Titirangi</p>



Source: Sean Shadbolt



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