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 Service (WRAPS) 2012
 Report: 4363
 Client: WRC
 Ref: 01 1769
 Path: E:\gis\EW_Geothermal_Sites_2003\2017\mxd\June2017
 File: Karapiti.mxd

Karapiti

Wildlands
 www.wildlands.co.nz, 0508 WILDNZ
 Scale: 1:11,000
 Date: 26/09/2018
 Cartographer: JO
 Format: A3R

KARAPITI

Area:	Geothermal Habitat: c.39.0 ha Geothermal Vegetation: c.39.0 ha
Geothermal Field:	Wairakei-Tauhara
Site Description:	<p>Karapiti is an amalgamation of four sites assessed in Wildland Consultants (2014a): Karapiti Forest, Craters of the Moon, Waipouwerawera Stream/Tukairangi and Hall of Fame Stream.</p> <p>The Karapiti site comprises geothermal features such as explosion craters, geothermally-influenced bare soil, fumaroles and sinter pavement. Most of the site is on protected land (Ministry of Tourism Reserve and Waipouwerawera Stream Conservation Area) with a small proportion of the site on unprotected private land. The largest area of geothermal vegetation and habitat at the site is managed as the well-established tourist attraction ‘Craters of the Moon’ and is in good ecological condition. A small area of geothermal vegetation occurs in the Waipouwerawera Stream gully (Waipouwerawera Stream /Tukairangi) to the west of the site, and several other small areas of geothermal vegetation occur in a gully that flows into the Waikato River (Hall of Fame Stream).</p> <p>At Waipouwerawera, an increase in vegetation cover in the hydrothermal eruption crater the site occupies, and a reduction in nonvegetated-raw soilfield suggests that soil temperatures have decreases since it was first studied in 1989.</p> <p>The Craters of the Moon part of the site (38.1 ha) contains good quality representative examples of geothermal vegetation, which includes nationally uncommon ecosystem types: geothermally heated dry ground and fumaroles (Williams <i>et al.</i> 2007, Holdaway <i>et al.</i> 2012). It contains one of the best examples of thermotolerant vegetation zonation which has developed in response to soil temperatures, and is an area of high geothermal activity (Given 1980). The site also supports populations of eight At Risk species including geothermal kānuka (At Risk-Naturally Uncommon), <i>Dicranopteris linearis</i> (At Risk-Naturally Uncommon), <i>Nephrolepis flexuosa</i> (At Risk-Declining), <i>Hypolepis dicksonioides</i> (At Risk-Declining), North Island robin (At Risk-Declining), New Zealand pipit (At Risk-Declining), and whitehead (At Risk-Declining). In terms of biodiversity services a relatively large number (20) of the vascular plant species typical of geothermal habitats are present (44 species in total).</p> <p>The Hall of Fame Stream part of the site (0.4 ha) is dominated by blackberry scrub, with a small area of fernland which supports a small population of <i>Christella</i> aff. <i>dentata</i> (“thermal”) (At Risk-Naturally Uncommon).</p> <p>This site is located within the Wairakei Geothermal Field, which is part of the Wairakei-Tauhara Geothermal System. This field has been exploited for energy generation, domestic, commercial and other uses¹. The vegetation and geothermal features of this site respond to the heating and cooling of soils, and are vulnerable to the management of the geothermal power plant (Given 1989a). Vegetation and geophysical monitoring of the</p>

¹ http://nzgeothermal.org.nz/nz_geo_fields; Accessed 14 February 2018.

	<p>features is undertaken - partly to assess if using the Wairakei Geothermal Field for energy production is having any effects on the features. Cody (2007) lists six features and geothermal characteristics present at or near this site (or other nearby sites in the Wairakei Geothermal Field). In terms of ecological values, the best parts of this site are of national significance (Wildland Consultants 2014a).</p>
<p>Ecosystem Services:</p>	<p>Provisioning services provided at the Karapiti site are limited to the potential for firewood from exotic trees present and a small amount of honey production (conservatively estimated at \$40 annually).</p> <p>The site provides regulation and maintenance services of bioremediation, mass stabilisation and control of erosion rates, and sequestration of carbon (8,972 tC annually) and potentially other climate change gases.</p> <p>The site provides a number of cultural services, with parts of the site being well visited as a tourist attraction, while other parts are on private land and are only seen by workers at geothermal power plants, forestry sites, and farms. Tourists currently pay a fee of \$8 per adult to visit the Craters of the Moon Tourist site. Safety is a key aspect of management of the tourist areas, with hand rails on bridges over geothermal features and gullies, warning signs, fencing, and formed walkways to control people movements. The site is of high scientific interest, with research papers published on the geophysical characteristics of the site, its geothermal field and other scientific values.</p>



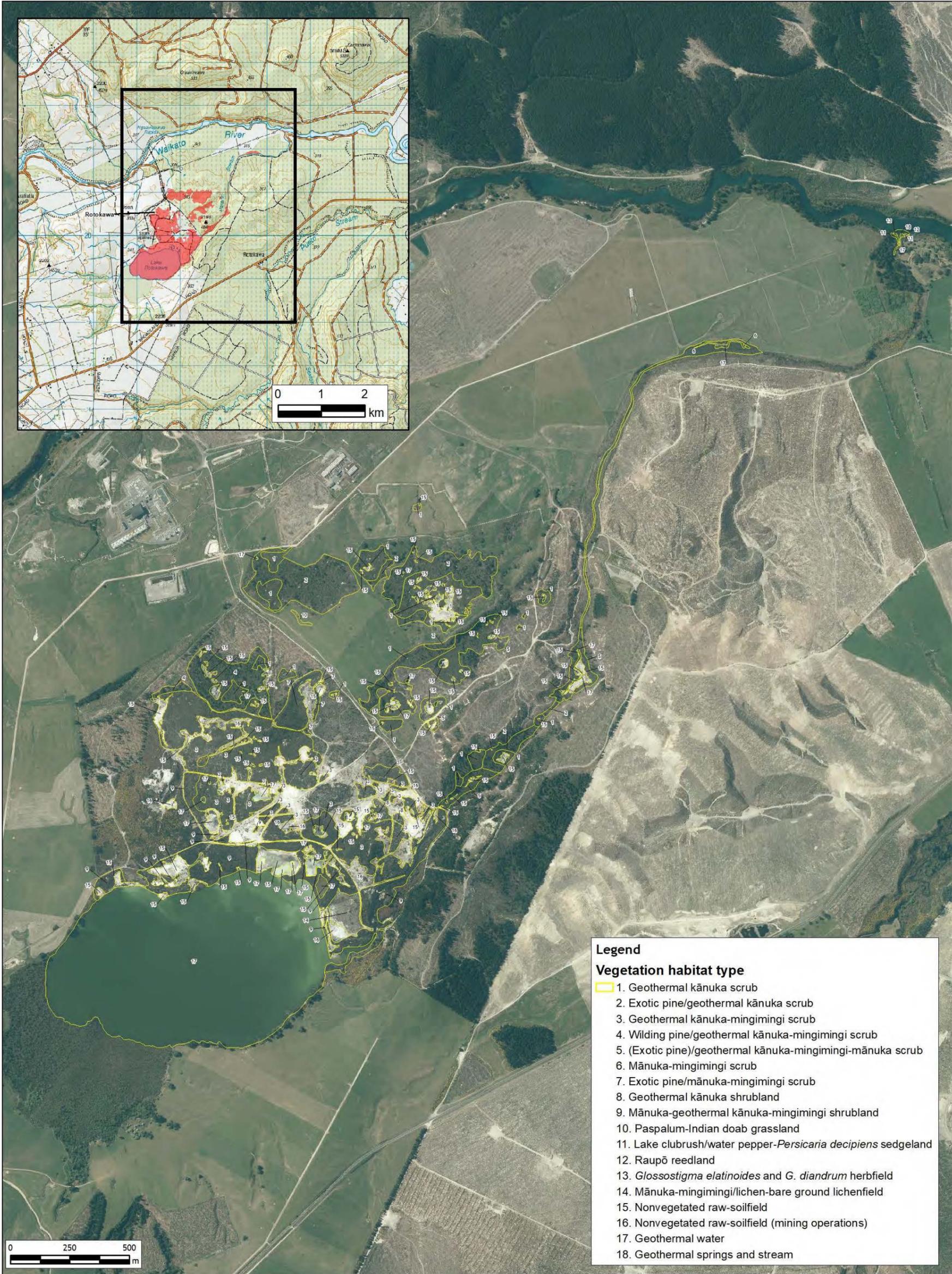
Crater at Craters of the Moon: A wide diversity of species typical of geothermal sites, including some of conservation concern are present at Craters of the Moon. (January 2014)



A wide diversity of vegetation types are present at Craters of the Moon including *Campylopus* mossfield, geothermally influenced bare ground, geothermal kānuka scrub and shrubland and broadleaved forest. (July 2004)



A large crater with declining geothermal values is present in the Waipouwerawera Valley. (March 2011)



- Legend**
- Vegetation habitat type**
- 1. Geothermal kānuka scrub
 - 2. Exotic pine/geothermal kānuka scrub
 - 3. Geothermal kānuka-mingimīngi scrub
 - 4. Wilding pine/geothermal kānuka-mingimīngi scrub
 - 5. (Exotic pine)/geothermal kānuka-mingimīngi-mānuka scrub
 - 6. Mānuka-mingimīngi scrub
 - 7. Exotic pine/mānuka-mingimīngi scrub
 - 8. Geothermal kānuka shrubland
 - 9. Mānuka-geothermal kānuka-mingimīngi shrubland
 - 10. Paspalum-Indian doab grassland
 - 11. Lake clubrush/water pepper-*Persicaria decipiens* sedgeland
 - 12. Raupō reedland
 - 13. *Glossostigma elatinooides* and *G. diandrum* herbfield
 - 14. Mānuka-mingimīngi/lichen-bare ground lichenfield
 - 15. Nonvegetated raw-soilfield
 - 16. Nonvegetated raw-soilfield (mining operations)
 - 17. Geothermal water
 - 18. Geothermal springs and stream

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Report: 4363
 Client: WRC
 Ref: 01 1769
 Path: E:\GIS\EW_Geothermal_Sites_2003\2017\mxd\June2017\
 File: Rotokawa.mxd

Rotokawa

Wildlands
 www.wildlands.co.nz, 0508 WILDNZ

Scale: 1:14,759
 Date: 28/02/2018
 Cartographer: JO
 Format: A3

ROKOKAWA

Area:	Geothermal Habitat: c.186.1 ha Geothermal Vegetation: c.114.8 ha
Geothermal Field:	Rotokawa
Site Description:	<p>Rotokawa is an amalgamation of two sites assessed in Wildland Consultants (2014a): Lake Rotokawa and Rotokawa North.</p> <p>The Rotokawa site, c.14 km northeast of Taupō, comprises a large acid lake (Lake Rotokawa) along with other features including fumaroles, geothermal springs, geothermal streams, eruption craters, collapse pits, sinter deposits, geothermally influenced river flats, geothermal lakes, mudpools, and open pumice loamfield (which has historically been mined for sulphur). A feature of the site is the large deposits of sulphur surrounding and beneath the lake¹. The surface geothermal manifestations at Rotokawa extend over c.4.5 km, from Lake Rotokawa in the south (with the widest extent of geothermal vegetation at the northern end of the lake), northwards along the Parariki Valley with a series of surface manifestations, to the Waikato River near the Parariki Stream outlet in the north. The majority of the site is legally protected (Lake Rotokawa Conservation Area) and the rest of the site is on unprotected private land.</p> <p>The Rotokawa North section of the site (40.7 ha) is of regional significance and the Lake Rotokawa section (145.4 ha) is of national significance for its ecological values (Wildland Consultants 2014a). Overall, the site comprises a large, good quality area of geothermal vegetation, which includes nationally uncommon habitat types: fumaroles, geothermally heated dry ground, geothermal streamsides, hydrothermally altered ground (now cool) (Williams <i>et al.</i> 2007; Holdaway <i>et al.</i> 2012). The site is degraded in parts, but also includes a wide diversity of geothermal habitats, and provides habitat for seven Threatened or At Risk plant and animal species including geothermal kānuka (At Risk-Naturally Uncommon), <i>Dicranopteris linearis</i> (At Risk-Naturally Uncommon), <i>Nephrolepis flexuosa</i> (At Risk-Declining), New Zealand pipit (At Risk-Declining), New Zealand falcon (At Risk-Recovering), North Island fernbird (At Risk-Declining) and banded dotterel (Threatened-Nationally Vulnerable).</p> <p>This site has been modified from more than 50 years of sulphur mining, along with forestry operations, pastoral farming, invasive exotic plant species, and more recently the commissioning of a geothermal power station in close proximity to the site. Sulphur mining is no longer taking place at the site, but a few areas are still in unfenced farmland. Other minerals found here are also of scientific and commercial interest including arsenic, gold, silver and thallium (see Huser 1988).</p> <p>Vegetation and geophysical monitoring of the features is undertaken - partly to assess if using the Rotokawa Geothermal Field for energy production is having any effects on these values. Cody (2007) lists 14 features and geothermal characteristics present at or near this site with five of these being of national significance or higher. The cultural significance of the site has seen much of it being protected as Lake Rotokawa</p>

¹ http://nzgeothermal.org.nz/nz_geo_fields/: Accessed 16 February 2018.

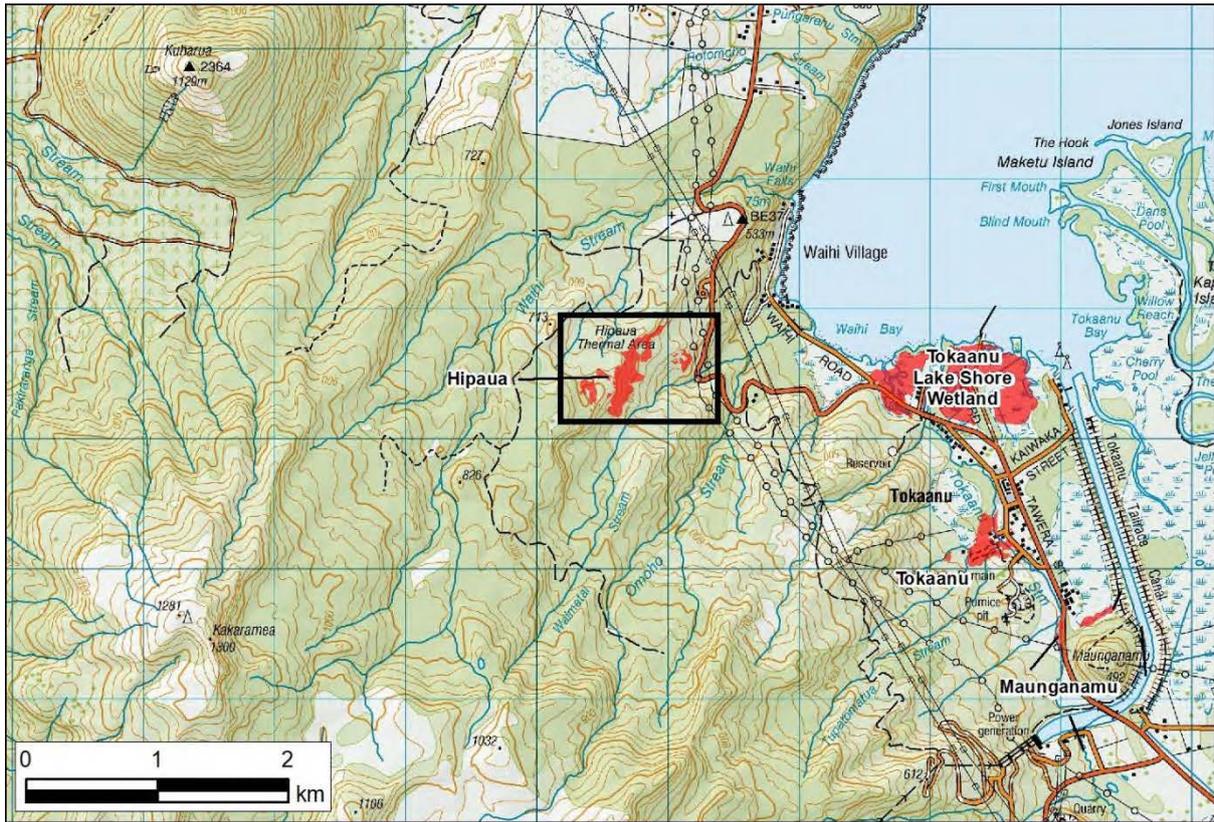
<p>Ecosystem Services:</p>	<p>Conservation Area.</p> <p>Provisioning services provided at the Rotokawa site include honey production (conservatively valued at \$10,160 annually) and beehives are present on the site (2017 observation). Small areas of raupō and harakeke (<i>Phormium tenax</i>) are present that could be utilised for fibre. In the past, sulphur has been extracted from the site, peaking in activity in the 1980s. Other minerals are also present that may be exploited including arsenic, gold, silver and thallium (now on land located within Lake Rotokawa Conservation Area).</p> <p>The site provides regulation and maintenance services of bioremediation, mass stabilisation and control of erosion rates, and sequestration of carbon (27,322 tC annually) and potentially other climate change gases.</p> <p>The site provides some cultural services, but is only visited rarely by the public, with access permits required from the Department of Conservation. While a full assessment of the cultural values to Māori was not undertaken, the site is known to be of significance to iwi (e.g. Huser 1988). Parts of the site are seen by workers at geothermal plants, forestry sites and farms. The lake and surrounding steam and geothermal features are a feature visible from Broadlands Road, between Taupō and Reporoa. Some fences and warning signs are present, but these are no longer being maintained. The site is of high scientific interest, with 1,370 research papers published on the geophysical characteristics of the site, its geothermal field and other scientific values (Google Scholar search).</p>
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Geothermal springs on the edge of Parariki Stream, Rotokawa. (September 2017)

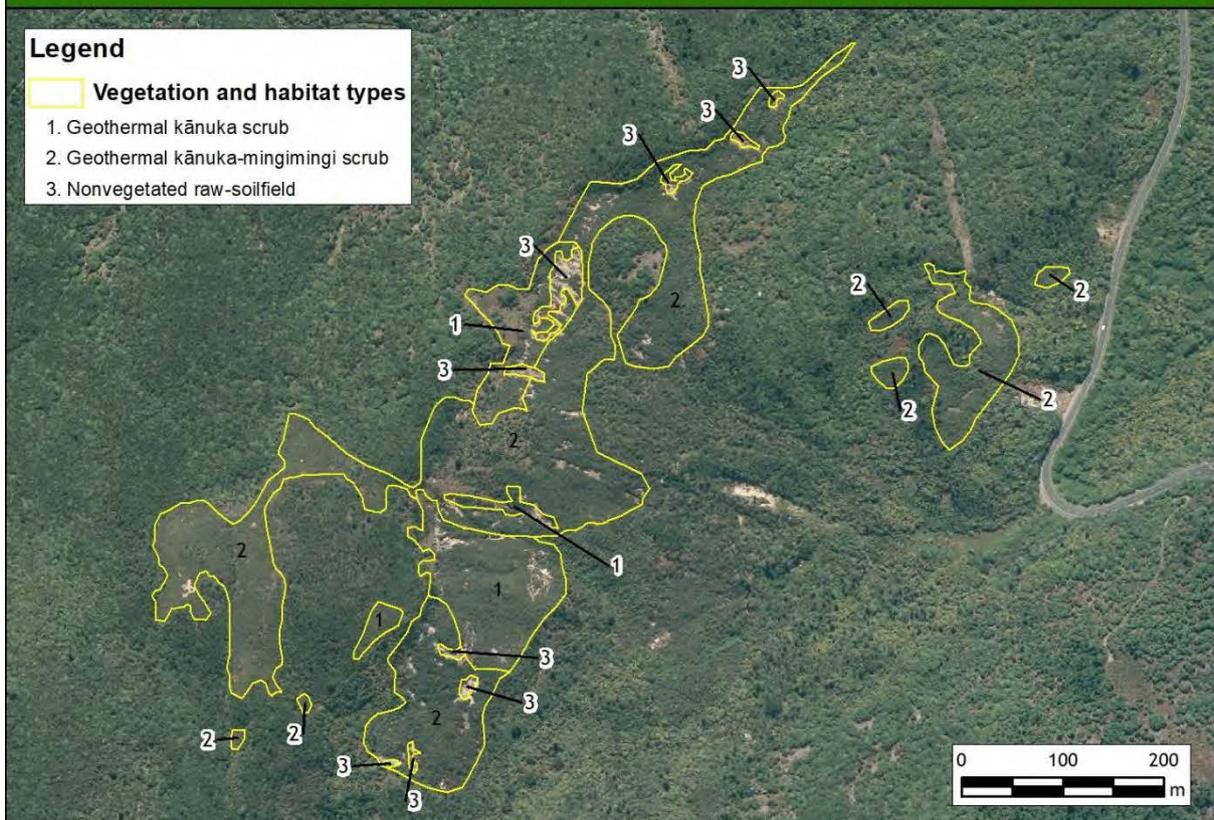


Sulphur cliffs in Rotokawa Conservation Area. (May 2014)



Legend

- Vegetation and habitat types**
1. Geothermal kānuka scrub
 2. Geothermal kānuka-mingimingi scrub
 3. Nonvegetated raw-soilfield



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Report: 4363
 Client: WRC
 Ref: 01 1769
 Path: E:\gis\EW_Geothermal_Sites_2003\2017\mxd\June 2017\A
 File: Hipaua.mxd

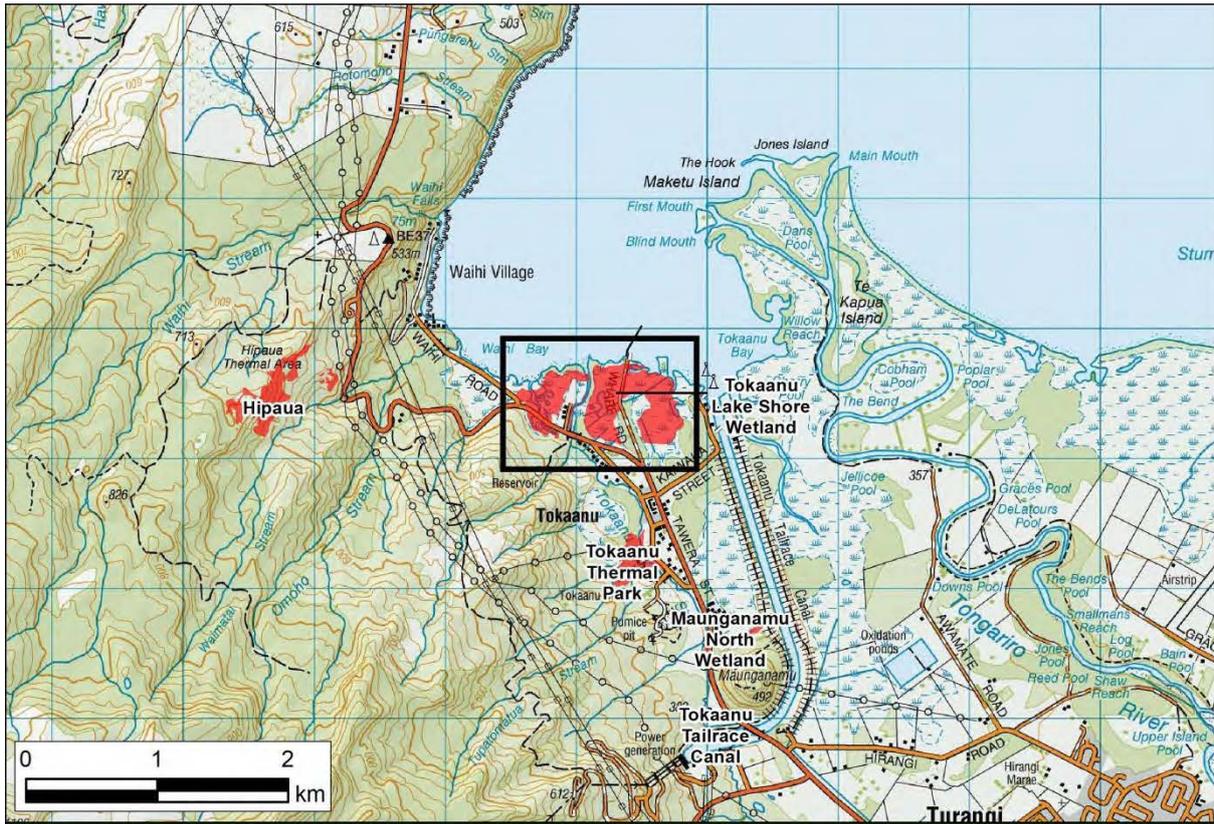
Hipaua

Wildlands
 www.wildlands.co.nz, 0508 WILDNZ

Scale: 1:6,500
 Date: 28/02/2018
 Cartographer: JO
 Format: A4

HIPAUA

Area:	Geothermal Habitat: c.12.1 ha Geothermal Vegetation: c.12.1 ha
Geothermal Field:	Tokaanu-Waihi-Hipaua
Site Description:	<p>Hipaua, south of Lake Taupō on the lower slopes of the Kakaramea volcano, comprises scattered steaming fissures, heated bare soils and fumaroles. This site has not been visited recently by Wildlands or other scientists, so information on the site is poor. Information on vegetation is restricted to assessing aerial photographs and site inspections described by Given (1995). It is probably still a relatively unmodified site well buffered by indigenous vegetation, on unprotected private land. Risk <i>et al.</i> (2002) describe the thermal features as being steam heated. The site contains a good example of a mosaic of geothermal vegetation zones corresponding to soil temperatures (Given 1995). This site is of at least regional significance because it comprises important habitat for an At Risk species (geothermal kānuka) and is a relatively large area of a nationally uncommon habitat type (geothermal habitat). The vegetation types present are representative of the ecological character of the Waikato Region and it is likely to have significant ecological values, although these are unknown. Landslides that originated from Hipaua Steaming Cliffs have devastated the community of Little Waihi on two occasions in 1846 and 1910 (Cooper 2002). It is estimated that the size of Hipaua Geothermal Field has increased from 3,000 m² in 1941 to 10,000 m² in 1999 (Cooper 2002). Cody (2007) lists two features and geothermal characteristics present at this site.</p>
Ecosystem Services:	<p>Ecosystem services provided at this site are based on a desktop exercise, as a field visit has not taken place.</p> <p>Provisioning services provided at Hipaua are not well understood. Parts of the site are utilised by pest animals such as pigs that could be hunted. The vegetation may provide a resource for honey production, although no mānuka has been mapped. Material use is unknown. There is the potential for wilding pines (and other exotic trees) to be utilised for firewood or other commercial gain.</p> <p>The site provides regulation and maintenance services of bioremediation in riparian vegetation (unknown value), including streams that flow into Lake Taupō. The vegetation provides mass stabilisation and control of erosion rates, and sequestration of carbon (2,879 tC annually) and potentially other climate change gases. There is a high risk of landslides at the site (they have previously occurred in 1846 and 1910; Cooper 2002), so land stabilisation services are provided by the vegetation at this site.</p> <p>The site probably provides cultural services, but is only visited rarely by the public. A full assessment of the cultural values to Māori was not undertaken, but the site is known to be significant to iwi (e.g. Cooper 2002). The site can be viewed from State Highway 41 between Tokaanu and Taumarunui. It is also visible from Lake Taupō. The site is of some scientific interest, with 83 research papers published on the geophysical characteristics of the site, its geothermal field and other scientific values (Google Scholar search).</p>



- Legend**
- Vegetation and habitat types
1. Raupō reedland
 2. Geothermal water



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 Client: WRC
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 File: Tokaanu_Lake_Shore_Wetland.mxd

Tokaanu Lake Shore Wetland

Wildlands
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Scale: 1:8,000
 Date: 30/09/2014
 Cartographer: RPB
 Format: A4

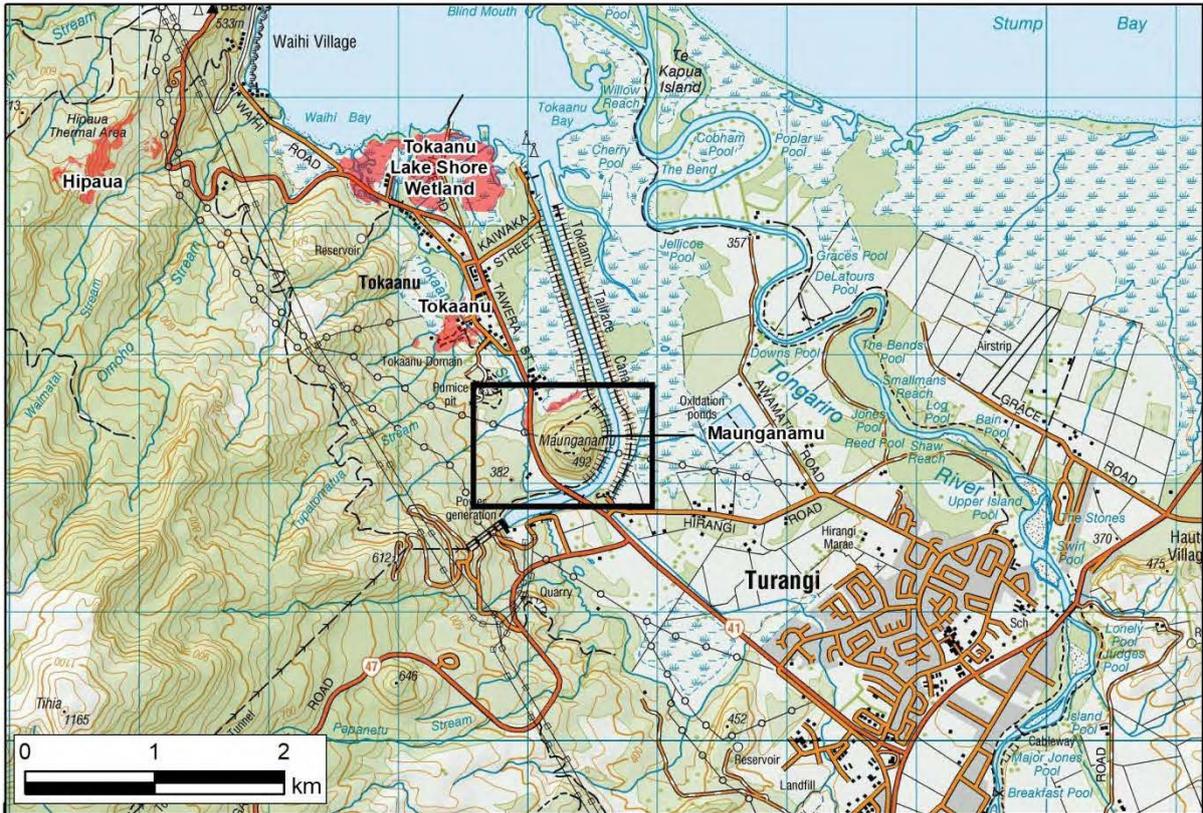
TOKAANU LAKESHORE WETLAND

Area:	Geothermal Habitat: c.42.3 ha Geothermal Vegetation: c.37.7 ha
Geothermal Field:	Tokaanu-Waihi-Hipaua
Site Description:	The Tokaanu Lakeshore Wetland is a large freshwater wetland comprising geothermally-influenced seepages and springs that occur on the southern shoreline of Lake Taupō. 14.8% of the site is legally protected (Tokaanu Recreation Reserve), and the rest is on unprotected private land. The site is of national significance for its ecological values (Wildland Consultants 2014a) because it provides habitat for Threatened and At Risk indigenous bird species, and because it is a good quality example of a nationally uncommon habitat type (geothermal wetland). It is one of the best examples of a wetland-geothermal sequence in New Zealand and is part of a large freshwater wetland that is in excellent ecological condition. The site provides habitat for six Threatened or At Risk animal species including Australasian bittern (Threatened-Nationally Critical), black-billed gull (Threatened-Nationally Critical), red-billed gull (At Risk-Declining), spotless crane (At Risk-declining), New Zealand dabchick (At Risk-Recovering), and North Island fernbird (At Risk-Declining). The boundaries of this site are particularly difficult to define, due to the difficult access to parts of the site and the vegetation obscuring many geothermal features. The site provides some geodiversity values, with several geothermal characteristics present.
Ecosystem Services:	<p>Extensive areas of raupō and some harakeke present that could be utilised for fibre are the only quantifiable provisioning services at this site.</p> <p>The site provides regulation and maintenance services of bioremediation in wetland habitat and riparian vegetation (unknown value), including Lake Taupō. The vegetation provides mass stabilisation and control of erosion rates, and sequestration of carbon (not defined) and potentially other climate change gases.</p> <p>The site provides some cultural services. The site is highly visible from State Highway 41 through Tokaanu, and to boat users on the lake edge. The site is also viewed by people fishing on the lake, and swimming or picnicking near the jetty. The site is of some scientific interest, with 44 research papers published on the geophysical characteristics of the site, its geothermal field and other scientific values (Google Scholar search). The site had the highest number of records (197) nationally for birds on the ebird¹ website, indicating the high ornithological interest of this site.</p>

¹ <http://ebird.org>: Accessed September 2017



Geothermally influenced water surrounded by raupō reedland at the Tokaanu Lakeshore wetland site. (February 2007)



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Report: 4363
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 Path: E:\gis\EW_Geothermal_Sites_2003\2017\mxd\June2017\
 File: Maunganamu.mxd

Maunganamu

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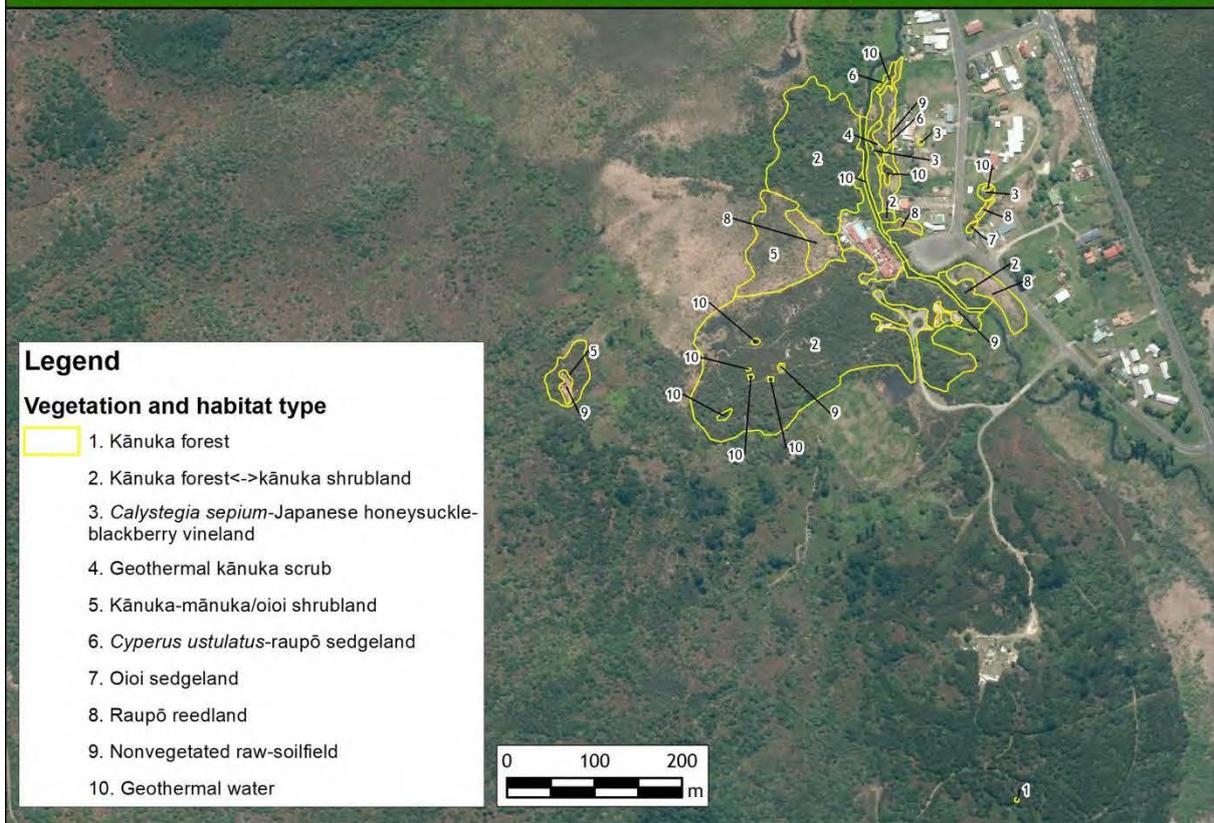
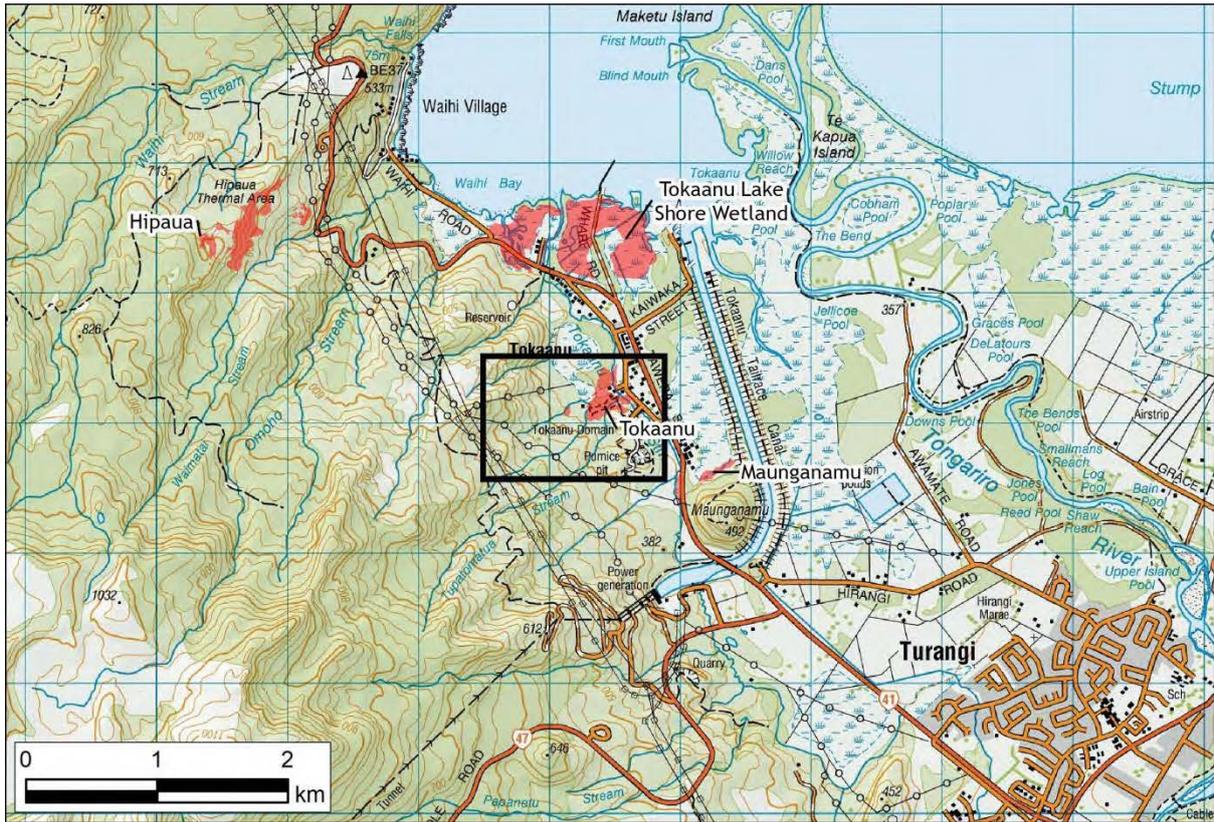
Scale: 1:7,475
 Date: 21/06/2017
 Cartographer: JO
 Format: A4

MAUNGANAMU

Area:	Geothermal Habitat: c.2.2 ha Geothermal Vegetation: c.2.2 ha
Geothermal Field:	Tokaanu-Waihi-Hipaua
Site Description:	<p>Maunganamu is an amalgamation of four sites assessed in Wildland Consultants (2014a): Maunganamu West, Maunganamu East, Maunganamu North Wetland, and Tokaanu Tailrace Canal.</p> <p>The site includes a series of geothermal manifestations on the eastern side of Tokaanu, mostly around the base of the small dacite volcanic dome Maunganamu (Thompson 1964). Features include several small raupō dominant wetlands with seepages and springs, and seepages and springs in Tokaanu Tailrace Canal. Only one small area still has stock access. A few weeds are present including Japanese honeysuckle (<i>Lonicera japonica</i>), blackberry, and crack willow (<i>Salix ×fragilis</i>). All areas (excluding the area originally mapped as Maunganamu West) were mapped as being of local significance for their ecological values (Wildland Consultants 2014a) as they are small examples of geothermal wetland. The Maunganamu West (c.0.6 ha) section of site is of regional significance because it is protected and managed by the Department of Conservation and it forms part of an extensive ecological sequence that extends from the shores of Lake Taupō to the summit of Kakaramea, Tihia, and Pihanga, and which includes Lake Rotopounamu and Lake Rotoaira. This ecological sequence includes extensive areas of geothermal habitat. The wetland vegetation is likely to provide habitat for North Island fernbird (At Risk-Declining). The extent of geothermal surface manifestations is difficult to determine at this site, with other features probably present on private land or obscured by vegetation and waterways.</p>
Ecosystem Services:	<p>Provisioning services provided at Maunganamu are limited to the extensive areas of raupō and some harakeke which are present that could be utilised for fibre.</p> <p>The site provides regulation and maintenance services of bioremediation in wetland habitat and riparian vegetation (unknown value), including Lake Taupō. The vegetation provides mass stabilisation and control of erosion rates, and sequestration of carbon (not quantified) and potentially other climate change gases.</p> <p>The site provides limited cultural services. While the site is viewable from the highway, the features present are mostly obscured and would not be readily recognised as geothermal and the site is rarely visited by the public. The site is of limited scientific interest, with 17 research papers published on the geophysical characteristics of the site, its geothermal field and other scientific values (Google Scholar search).</p>



Several geothermal springs and seepages were found near the edge of the Tokaanu Tailrace Canal. (February 2007)



- Legend**
- Vegetation and habitat type**
- 1. Kānuka forest
 - 2. Kānuka forest<->kānuka shrubland
 - 3. *Calystegia sepium*-Japanese honeysuckle-blackberry vineland
 - 4. Geothermal kānuka scrub
 - 5. Kānuka-mānuka/oioi shrubland
 - 6. *Cyperus ustulatus*-raupō sedgeland
 - 7. Oioi sedgeland
 - 8. Raupō reedland
 - 9. Nonvegetated raw-soilfield
 - 10. Geothermal water

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Report: 4363
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 Path: E:\gis\EW_Geothermal_Sites_2003\2017\mxd\June2017\
 File: Tokaanu.mxd

Tokaanu

Wildlands
 www.wildlands.co.nz, 0508 WILDNZ

Scale: 1:7,481
 Date: 28/02/2018
 Cartographer: JO
 Format: A4

TOKAANU

Area:	Geothermal Habitat: c.7.6 ha Geothermal Vegetation: c.7.3 ha
Geothermal Field:	Tokaanu-Waihi-Hipaua
Site Description:	<p>Tokaanu is an amalgamation of two sites assessed in Wildland Consultants (2014a): Tokaanu Thermal Park and Tokaanu Urupa Mud Pools.</p> <p>The Tokaanu site is on protected land (Tokaanu Hot-Springs Reserve and Tokaanu Thermal Park Recreation Reserve) and unprotected private land. It comprises features such as mud pools, boiling water (including cooking and bathing sites), hot springs, sinter terraces, geysers, and thermally altered soils. Atakororeke Stream is a geothermally influenced stream, and other geothermally influenced waterways dissect the site. The area covered by sinter deposits has declined markedly from c.15,000 m² in 1870-73 to c.5,000 m² in 1940, and has further reduced to less than 800 m² in 2007 (Hochstein <i>et al.</i> 2008).</p> <p>The site contains populations of seven At Risk species: geothermal kānuka (At Risk-Naturally Uncommon), <i>Nephrolepis flexuosa</i> (At Risk-Declining; old record), <i>Korthalsella salicornioides</i> (At Risk-Naturally Uncommon), <i>Christella</i> aff. <i>dentata</i> (“thermal”) (At Risk-Naturally Uncommon; old record), <i>Schizaea dichotoma</i> (At Risk-Naturally Uncommon; old record), North Island fernbird (At Risk-Declining) and whitehead (At Risk-Declining). Most of the site is protected under the Reserves Act (1977) and comprises a relatively large example of geothermal vegetation which includes a wide diversity of habitat types.</p> <p>The Tokaanu Urupa Mud Pools, which are within the site, are part of an extensive area of natural vegetation that extends from the shores of Lake Taupō to the summit of Kakaramea, Tihia, and Pihanga, and includes Lake Rotopounamu and Lake Rotoaira. This large natural area includes an excellent, representative example of an ecological sequence that includes extensive areas of geothermal habitat.</p> <p>Pest plants are common in the surrounding vegetation and geothermal margins and the site is highly dissected by formed walking tracks. However the vegetation is of relatively good quality, and is contiguous with an extensive wetland to the west. The ‘Tokaanu Thermal Pools’ are located within the site, which attracts local, regional and international visitors. Zarrouk and Keys (2008) and Hochstein <i>et al.</i> (2008) noted that the loss of pressure in the shallow reservoir due to abstraction of water is partly responsible for the loss of natural features in the reserve.</p> <p>The boundaries of geothermal surface manifestations are difficult to determine at this site, with other features probably present on private land or obscured by vegetation and waterways. Cody (2007) lists 13 features and geothermal characteristics present at or near this site with one of these being of national significance.</p> <p>In terms of ecological values, this site is of National significance (Wildland Consultants 2014a).</p>
Ecosystem Services:	Provisioning services provided at the Tokaanu site include nutrition, materials, and energy. Some water is drawn off from the site for

swimming pools, but no data is available on volumes. However, a description of the process and suggested management of the water drawoff is described in Zarrouk and Keys (2008) and Hochstein *et al.* (2008). The vegetation may provide a resource for honey production (conservatively valued at \$320 annually). Areas of raupō and some harakeke are present which could be utilised for fibre.

The site provides regulation and maintenance services of bioremediation in wetland habitat and riparian vegetation (unknown value), including streams that flow into Lake Taupō. The vegetation provides mass stabilisation and control of erosion rates, and sequestration of carbon (1,808 tC annually) and potentially other climate change gases.

The site provides a broad range of cultural services, particularly to local iwi. The free tourist nature walk at Tokaanu attracts approximately 98,200 tourists annually (Barns and Luketina 2011). The pools attract some 130,000 visitors per annum (Zarrouk and Keys 2008). The geothermal bathing area is a taonga of the Ngati Kurauia people, a hapu of Ngati Tuwharetoa, which for generations have recognised the ‘wai ora (healing waters)’¹. The site is highly visible from Tokaanu township and some of the features can be viewed from the settlement. Accommodation is also present near the site and the geothermal features are a major attraction for visitors. The site is of considerable scientific interest, with 470 research papers published on the geophysical characteristics of the site, its geothermal field and other scientific values (Google Scholar search). Public safety signs are present near the pool and walking tracks, with clear tracks and fencing to protect people, vegetation and geothermal features.

¹ <https://www.nzhotpools.co.nz/hot-pools/tokaanu-thermal-pools>: Accessed 16 February 2018.



Tokaanu Healy Bore. (June 2005)



Roads and walking track in Tokaanu Thermal Park Recreation Reserve, Tokaanu. (August 2004)



Local areas of oioi (*Apodasmia similis*) are present amongst mānuka at Tokaanu. (June 2005)



A large geothermal spring at Tokaanu Thermal Park recreation area. (August 2004)



Geothermal springs are present at Tokaanu Stream. (August 2004)