



## Waiotapu South Extension

<b>Site Number:</b>	SNA555
<b>Ecological District:</b>	Atiamuri
<b>Source of Information:</b>	Wildland Consultants (2014a)
<b>Digital Scale:</b>	1:5,000
<b>Data Source:</b>	WRAPS 2007
<b>Regional Council:</b>	Waikato
<b>1998 Site Number:</b>	Not identified in Shaw and Beadel (1998).
<b>Current Tenure:</b>	Unprotected
<b>Site Area:</b>	58.1 ha
<b>Altitude Range:</b>	310-380 m
<b>Bioclimatic Zone:</b>	Lowland
<b>Grid Reference:</b>	NZTM E1894459, N5749044
<b>Description and Assessment:</b>	The description and assessment below covers the entire natural area, which is mainly within a protected area. The Waiotapu South Extension SNA comprises several unprotected areas within the larger Waiotapu natural area and these are shown on the SNA site map. The significance assessment is based on the ecological values of the entire natural area of which the Waiotapu South Extension SNA is a part of. Note: vegetation types not present in the SNA are not shown in this site sheet, however they are presented in Wildland Consultants 2014a.

VEGETATION		LANDFORM	EXTENT
CODE	TYPE		
1	<p><b>Exotic pine/prostrate kānuka-mingimingi-mānuka scrub</b></p> <p>Wilding radiata pine and maritime pine occur over prostrate kānuka, mingimingi, mānuka, broom, prickly mingimingi, <i>Coprosma lucida</i>, blackberry, and whauwhaupaku, with occasional black wattle, kāmahī, and whauwhaupaku. Groundcover components include bracken, <i>Carex secta</i>, tūrutu, <i>Hypolepis ambigua</i>, kiokio, swamp kiokio and ring fern.</p> <p>Along the margins of heated streams, pines are scattered above a canopy dominated by prostrate kānuka, with local small areas of steaming ground. Tūrutu, water fern, broom, harakeke, and Yorkshire fog are also common within these areas.</p> <p>Other notable species within this type include <i>Lycopodiella cernua</i> and <i>Gleichenia microphylla</i>. Boiling mud pools are scattered throughout this area. Blackberry and mingimingi dominate less geothermally active areas within this type.</p>	Flat areas, stream margins and wetland Flat area and gently rolling hills	c.16.2. ha
2	<p><b>Mānuka scrub</b></p> <p>This vegetation type is part of an extensive wetland in the south of the site. Mānuka forms a canopy c.2-4 m tall over a dense groundcover of <i>Machaerina rubiginosa</i>, kiokio, <i>Carex secta</i>, <i>Hypolepis distans</i>, and exotic grasses such as Yorkshire fog in drier areas. Prostrate kānuka and mingimingi are common around sinter and hot springs within this type, with local arrow grass. Raupō reedland occurs locally, and there are patches of lake clubrush, <i>Carex secta</i>, and <i>Carex virgata</i> are present. Arrow grass occurs in several locations on sinter. Pig sign was abundant throughout.</p>	Wetland	c.0.5 ha

VEGETATION		LANDFORM	EXTENT
CODE	TYPE		
3	<p><b>Mānuka-mingimingi-blackberry-bracken scrub</b> A highly diverse vegetation type with areas of mānuka scrub, mingimingi scrub, blackberry scrub, and bracken fernland, and scattered emergent wilding maritime pines. Broom is common in places, and whekī and whekī-ponga occur in wet areas. Mud pools and hot springs are common, with sinter present near many of the hot springs.</p> <p>Along stream margins mingimingi, mānuka, water fern, tūrutu, and bracken are common. Blackberry becomes dominant on cooler soils, although steam is common within the blackberry. Vegetation within this type along the stream margins was viewed from a distance</p>	Flat, rolling hills, gently undulating, stream margins	c.1.0 ha
4	<p><b>Prostrate kānuka shrubland</b> Prostrate kānuka forms a discontinuous canopy c.0.1-1.0 m high in association with scattered mingimingi, and local <i>Lycopodiella cernua</i>.</p>	Gently undulating, flat	c.11.6 ha
5	<p><b>Prostrate kānuka-mingimingi-mānuka shrubland</b> A dense canopy of prostrate kānuka, mingimingi, and mānuka, with locally dominant kānuka and local monoao. Maritime pine is locally common on cooler soils along the margins of these areas.</p>	Flat area, gently rolling hills	c.8.1 ha
6	<p><b>Prostrate kānuka-kāmahi-whekī-whauwhaupaku/blackberry shrubland</b> Prostrate kānuka, kāmahi, whekī, and whauwhaupaku comprise the canopy over blackberry with <i>Hypolepis ambigua</i> and ring fern locally common around steam vents.</p>	Stream margin	<0.1 ha
8	<p><b>Nonvegetated raw-soilfield</b> Includes craters, steaming ground, boiling mud, hot pools, and sinter terraces.</p>	Flat, gently rolling	c.6.1 ha
9	<p><b>Sinter</b> A large sinter terrace.</p>	Flat	c.2.0 ha
10	<p><b>Geothermal water</b> Geothermally influenced pools and lakes.</p>	Open water	c.12.4 ha
11	<p><b>Mudpools</b></p>	Mud pools, craters	<0.1 ha

**Indigenous Flora:** A population of geothermal kanuka ('At Risk - Naturally Uncommon' in de Lange *et al.* 2009) is present.

**Fauna:** Unknown. Probably only common indigenous and introduced species are present.

**Notes on Overall Condition:** A moderate-sized area of geothermal vegetation that is complementary to the nearby Waiotapu Geothermal Area. Wilding pine trees are present.

**Change Relative to Shaw and Beadel (1998):** Probably little change.

**Threats/Modification/Vulnerability:** Wilding pines are likely to continue invading the site.

**Risk Assessment:** Wilding pines: Risk to site - high; Timeframe - medium.

**Significance Level:** Regional (Appendix 7 - Table 1 - Criteria 3, 5, 9; Table 2 - Factors L, Q).

**Significance Justification:** The site is of regional significance as it contains a population of geothermal kanuka ('At Risk - Naturally Uncommon').

**Field Work Required:** No fieldwork is required.

**Notes:** This site was mapped as part of Waiotapu South (U17/1) in Wildland Consultants (2004b). Some of this information is more relevant to the entire Waiotapu South site.

Control of wilding pines would improve ecological values and long-term viability of the site.

**References:** Wildland Consultants (2004b, 2009, & 2014).