



Ruahine Springs

Site Number: SNA38
Ecological District: Rotorua Lakes
Source of Information: Shaw and Beadel (1998); Wildland Consultants (2005c)
Digital Scale: 1:2,000
Data Source: RDAM 2006
Regional Council: Bay of Plenty
1998 Site Number: NHS No. 38
Current Tenure: Unprotected
Site Area: 3.1 ha
Altitude Range: 350-380 m
Bioclimatic Zone: Lowland
Grid Reference: NZTM E1896600, N5783360

VEGETATION		LANDFORM	EXTENT
CODE	TYPE		
1	Mingimingi-kanuka-prostrate kanuka scrub Mingimingi, kanuka and prostrate kanuka dominate a dense shrubland to c.2 m tall. Several smaller patches of <i>Histiopteris incisa</i> , manuka and gorse occur amongst this vegetation type. Occasional wilding radiata pine is present. Occasional turutu, bracken, narrow-leaved carpet grass and Mercer grass are present in the understorey.	Flat, hillslope	1.5 ha
2	Kanuka-mingimingi scrub Two small units where kanuka and mingimingi dominate a scrub community. Several radiata pine occur in this vegetation type, including one tree that has fallen into the geothermal vegetation.	Hillslope, flat	<0.1 ha
3	<i>Histiopteris incisa</i> -narrow-leaved carpet grass-gorse fernland A small unit of <i>Histiopteris incisa</i> fernland, with smaller patches of narrow-leaved carpet grass and gorse common. Other species present include bracken, mingimingi and Mercer grass.	Flat	<0.1 ha
4	Narrow-leaved carpet grass grassland Narrow-leaved carpet grass is dominant in association with patches of bare ground and occasional radiata pine, mingimingi, <i>Histiopteris incisa</i> , and gorse. There are also several patches of Mercer grass present.	Flat	<0.1 ha
5	Geothermal water Geothermally influenced water with many hot springs and geothermally heated streams. The southwest corner of this site is extremely active with several very large hot springs.	Geothermal water	<0.1 ha
6	Nonvegetated raw-soilfield Sinter, heated soil, hot springs, steaming soil, and abundant fumaroles. The western part of this site is significantly more active than the eastern portion. Occasional mingimingi and prostrate kanuka occurs amongst this bare ground habitat.	Flat, hillslope, cliff	1.5 ha

Indigenous Flora: A population of prostrate kanuka ('At Risk - Naturally Uncommon' in de Lange *et al.* 2009) is present. Prostrate kanuka is an endemic species restricted to geothermal sites in New Zealand. Other indigenous species typical of geothermal habitats are present, including kanuka, mingimingi, manuka, turutu, *Histiopteris incisa*, and bracken.

Fauna: Common indigenous and introduced birds typical of the habitat are present including grey warbler and goldfinch. No threatened or at risk species as

listed in Miskelly *et al.* (2008) have been recorded from this site.

Notes on Overall Condition:	The site comprises some areas of geothermal activity, and associated geothermal vegetation in a moderate condition. A population of prostrate kanuka is present. Pest plants are common on cooler soils at this site.
Change Relative to Shaw and Beadel (1998):	The extent and composition of geothermal vegetation and habitat at this site is similar to that recorded in 1996 (Beadel <i>et al.</i> 1996b). The far eastern part of this site was not mapped in 1996.
Threats/Modification/Vulnerability:	<p><i>Invasive Exotic Plants:</i> Much of the geothermal vegetation is surrounded by plantation forestry, mostly radiata pine. Wilding pines have spread into geothermal vegetation (1-5% cover). Parts of the site are surrounded by thick gorse which is present in the margins of the geothermal vegetation (5-25% cover).</p> <p><i>Human Impacts:</i> Radiata pines have been planted along the margins of geothermal vegetation. Care should be taken during harvesting and other operations associated with plantation forestry including machinery work and herbicide application to ensure that damage to geothermal vegetation is kept to a minimum. Several planted radiata pine trees have fallen into geothermal vegetation in places. Several unformed tracks occur around geothermal areas. Small controlled fires had been lit in the northern part of the main geothermal area in 2005, but have not damaged the geothermal vegetation present.</p> <p>It is thought that the Tikitere Geothermal Field may be linked to the Taheke Field, for which a geothermal power plant is proposed. If there is a link then Ruahine Springs could be threatened by this proposal.</p> <p><i>Grazing:</i> This site is not farmed, but should be fenced if surrounding land is used for farming in the future.</p>
Risk Assessment:	Wilding pines: Risk to site - medium; Timeframe - medium. Other pest plants: Risk to site - low; Timeframe - low. Management of neighbouring forestry operations: Risk to site - medium; Timeframe - medium.
Significance Level:	Regional (Appendix 10 - Table 1 - Criteria 1, 2, 4, 8, 11, 12, 13; Factors R4, R9).
Significance Justification:	This site is of regional significance because it contains a population of prostrate kanuka ('At Risk – Naturally Uncommon'). It is also an example of under-represented geothermal vegetation.
Fieldwork Required:	No fieldwork is required.
Notes:	It appears from study of aerial photographs that some natural changes in surface manifestations of geothermal vegetation and habitat have occurred since the last site field survey in 2005 (Wildland Consultants 2005c). To reflect this change, minor changes have been made to site boundaries on new aerial photographs. However, site descriptions are based on Wildland Consultants (2005c).

A small, relatively good quality example of geothermal vegetation. The thermal vegetation types present are nationally uncommon. They are different to many of the other geothermal areas in the region, being dominated by mingimingi and having a low species diversity. Taheke geothermal area and the adjacent Paehinahina-Mourea Trust lands also have similar thermal vegetation (Beadel 1996a, Given 1989, Clarkson and Clarkson 1992, Clarkson *et al.* 1990; see Section 3).

This site was identified as a “Recommended Area for Protection” (RAP No. 38) in the natural area survey of Rotorua Lakes ED (Beadel *et al.* 1998).

References:

Beadel *et al.* (1996b); Clarkson *et al.* (1990); Given (1978), Wildland Consultants (2005c); Shaw and Beadel (1998).