



Akatarewa Stream¹

Site Number:	SNA 558
Ecological District:	Atiamuri
Source of Information:	Wildland Consultants (2014a)
Digital Scale:	1:5,000
Data Source:	Bay of Plenty 0.25m Rural Aerial Photos (2015-17)
Regional Council:	Waikato
1998 Site Number:	NHS No. 558 (Waikato Geothermal Site Number U17/30)
Current Tenure:	Unprotected
Site Area:	0.34 ha
Altitude Range:	290-320 m
Bioclimatic Zone:	Lowland
Grid Reference:	NZTM E1874680, N5738159

VEGETATION		LANDFORM	EXTENT
CODE	TYPE		
1	(Maritime pine)/kiokio-blackberry-bracken-buddleia shrubland Kiokio, blackberry, bracken, and <i>Cyperus ustulatus</i> are common along stream margins, with scattered emergent maritime pine, tī kōuka, whauwhaupaku, kōhūhū, buddleia, harakeke, karamū, and whekī. Creeping bent, Yorkshire fog, <i>Deparia petersenii</i> , water fern, ring fern, <i>Hypolepis ambigua</i> , creeping buttercup, paku (<i>Pneumatopteris pennigera</i>), <i>Carex secta</i> , and lotus are also common. There are scattered <i>Christella</i> aff. <i>dentata</i> (“thermal”) plants along the stream.	Stream margins	1.4 ha
2	Geothermal water Geothermal stream. Springs, seepages, and occasional sinter are present along the entire length of the stream that has been mapped within this site (not mapped separately). Water temperatures of up to 63.8 °C were recorded from the stream in 2014 (range 38.9 °C-63.8 °C).	Stream	0.3 ha

Indigenous Flora: *Christella* aff. *dentata* (“thermal”) (At Risk-Naturally Uncommon) is scattered alongside stream margins throughout this site. The population appears to have decreased within the site compared with 2007, with only six plants recorded in 2014 compared with 47 mature plants in 2007. This may be related to the timing of the survey.

Cyclosorus interruptus (At Risk-Declining) was recorded at this site in 2002 (Hobbs 2002) but was not observed in either 2007 or 2014 in spite of extensive searching. *C. interruptus* is a seasonal species in the central North Island and is not always visible during all seasons, so this species could still be present at this site.

Dicranopteris linearis var. *linearis* (At Risk-Naturally Uncommon, and known from only c.23 sites in New Zealand) has also been recorded from this site in 2002 (Hobbs 2002), but was not recorded in the 2007 or 2014 survey.

Other species typical of geothermal sites present include water fern, bracken, and *Cyperus ustulatus*.

¹ This site was called Orakeikorako A in Shaw and Beadel (1998).

Fauna:	No threatened or at risk species as listed in Robertson <i>et al.</i> (2013) have been recorded from this site. Common indigenous and introduced bird species typical of the habitat have been recorded including North Island robin, grey warbler, North Island fantail, bellbird, pied tit, tūī, kōtare (sacred kingfisher), and California quail. Other common indigenous and introduced bird species typical of the habitats are likely to be present.
Notes on Current Condition:	Much of the site is in a poor to moderate ecological condition with plantation forestry occurring close to stream margins. The site provides good habitat for at least one 'At Risk' fern species. Stream flows into Lake Ohakuri. A camp ground is present near the stream at one point.
Change Relative to Shaw and Beadel (1998):	Harvesting of plantation pines alongside stream margins is likely to have damaged some riparian stream vegetation at this site.
Threats/Modification/Vulnerability:	<p><i>Invasive Exotic Plants:</i> Blackberry (25% cover), pampas (5% cover), grey willow (<1% cover), buddleia (5% cover), Himalayan honeysuckle (5% cover), cotoneaster (<1% cover), black wattle (<1% cover), Spanish heath (<1% cover), wild kiwifruit (<i>Actinidia deliciosa</i>) (<1% cover), and Montpellier broom (<1% cover) are present.</p> <p><i>Human Impacts:</i> Several bridges and culverts. Bathing pools. Plantation forest harvesting nearby.</p> <p>Livestock have no access to the area.</p>
Risk Assessment:	Plantation forest management: Risk to site - high; Timeframes - medium. Pest plants: Risk to site - medium; Timeframes - medium.
Significance Level:	Regional (Appendix 7 - Table 1 - Criteria 3, 5, 6, 11; Table 2 - Factors L, Q).
Significance Justification:	This site is of regional significance because it contains an important population of an 'At Risk' species, <i>Christella</i> aff. <i>dentata</i> ("thermal"). This is one of only 15 known sites of <i>Christella</i> aff. <i>dentata</i> ("thermal") in the North Island (Wildland Consultants 2009).
Field Work Required:	No field work required.
Notes:	<p>Given (1996) assessed the botanical value of many of the geothermal sites in the Waikato Region. This site was classed as Category C - the third highest category.</p> <p>Some of the <i>Christella</i> aff. <i>dentata</i> ("thermal") plants may have been damaged during recent harvesting of plantation forest. This may explain why only 47 plants were recorded in 2007 compared to 96 plants in 1999 (Merrett and Burns 1999), when the count occurred prior to harvesting.</p> <p>The stream margins have good potential for ecological restoration. Management should include control of pest plant species (e.g. patches of dense blackberry scrub) and planting of suitable, locally-sourced indigenous species. Establishing a buffer of indigenous vegetation between the stream and plantation forestry would reduce the possibility of harvesting operations impacting on the <i>Christella</i> aff. <i>dentata</i> ("thermal") populations.</p> <p>This site was ranked as being of national significance in Wildland Consultants (2007b), but its ranking has been updated in response to the new threat</p>

classification system (Townsend *et al.* 2008) and the updated threat classification lists for plants (de Lange *et al.* 2013).

References:

Beadel and Bill (2000); Beadel and Bill (2002); Given (1989a, 1995, & 1996); Hobbs (2002); Merrett and Burns (1999); Spring Rice (1995); Unpublished Atiamuri PNAP data (1995); Wildland Consultants (2004c, 2007a, 2007b, 2009, 2012, & 2014).