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# The Population of the Lake Taupo Region, New Zealand, 1839–1859

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## ABSTRACT

Early historical estimates of population size, missionary census records, and other documentary evidence indicate that the population of the Lake Taupo region was of the order of 1100 to 1600 in the mid-nineteenth century.

*Keywords:* LAKE TAUPO, CONTACT PERIOD, POPULATION SIZE, SETTLEMENT PATTERNS.

## INTRODUCTION

Over many years there have been sporadic efforts to determine the size of the Maori population between the date of Cook's first visit in 1769 and the late nineteenth century, when recurring censuses began (Lewthwaite 1950; Pool 1977). The difficulty of establishing the size of a population in the absence of census data is well known (McArthur 1970; Denevan 1976). The size of the Maori population in the 1830s and 1840s, for example, was commonly estimated by contemporary observers at figures in excess of 100,000 yet the first nation-wide census in 1857–8 produced a figure of less than 60,000. There is now general recognition that detailed studies of population size at the regional level are required if the differences are to be resolved.

Detailed studies of the size of the early historical Maori population at the regional level are uncommon. Pearce (1952) attempted to establish the reliability of the first national censuses by comparing the different results, region by region, with other available data. Inevitably the broad scope of her work severely restricted the consideration that could be given to any particular region. This paper, by contrast, has a very narrow focus and attempts to establish the size of the population living in one area over a period of just two decades. The region is that centred on Lake Taupo; the period is the 1840s and 1850s. Emphasis is placed on evaluating the documentary evidence and, in particular, weighing estimates of population size, determining the nature of the subsistence-settlement pattern, and establishing the degree of change caused by warfare, epidemics, and natural hazards. The census records of the 1870s and 1880s are also relevant, as they place limits on the extent of the uncertainties in the data from earlier decades.

The area under consideration in this paper is the Taupo basin, together with the area north to the Waikato river (Fig. 1). This not only corresponds to the natural geographical division of the country but also broadly corresponds to the area occupied last century by Ngati Tuwharetoa (Grace 1970). Some Ngati Raukawa did, however, live within this area in the north where it bordered their tribal area centred on Mt Maungatautari. The early estimates of population for Taupo are for an area defined only in very general terms. The census records of the 1870s and 1880s are similarly vague about the extent of the reporting

area. Any uncertainties in the figures introduced by this factor are at best marginal and only the 1881 census results have had to be corrected to conform with the area as defined above. The census lists the population by settlement, with tribal and hapu affiliation of each settlement recorded, enabling these adjustments to be made with some precision.



Figure 1: Location of settlements mentioned in the text.

### DOCUMENTARY EVIDENCE OF POPULATION SIZE

Bidwill, who visited Taupo in February and March 1839, suggested that the population "could not be less than 5000" (Bidwill 1841: 40). Soon after, in 1841, Dieffenbach (1843 II: 79) travelled through the area and he estimated the population at 3200. In the national census of the Maori population undertaken in 1857–8 (Fenton 1859) the population of the Taupo area was put at 2000. Unfortunately Taupo was one of the areas where the figure reported was not based on a head count but was merely an estimate by the Rev. Richard Taylor. Taylor had last been in Taupo in February 1853 and his estimate of the population

had been published in 1855 (Taylor 1855: 468). Hochstetter, who was in the Taupo area in 1859, also reported a population of 2000 (Hochstetter 1867: 382-3). Although he does not say so, the figure is almost certainly derived from Fenton's publication, as this is acknowledged elsewhere in Hochstetter's book.

TABLE 1  
ESTIMATES OF POPULATION SIZE

Population	Year for which estimate made	Source
1600	c. 1838	unnamed missionary (GBPP 1838/680: 251)
"not less than" 5000	1839	Bidwill (1841: 40)
3200	1841	Dieffenbach (1843 II: 79)
1800	c. 1842	Hamlin (1842: 357-8)
1500	1845	Chief Protector of Aborigines (GBPP 1846/337: 47)
1104 (census)	1849	Skinner (Brown Journal 15 December 1849)
1071 (census)	1849	Skinner (NM 8 1851/284)
2000	c. 1855	Taylor (1855: 468)
2000	1857-8	Taylor (Fenton 1859).
2000	1859	Hochstetter (1867: 382-3)

Other estimates from the period (Table 1) suggest that the lower end of the range is the more accurate. The earliest estimate of the population of Taupo was given at the hearings of the Select Committee of the House of Lords on New Zealand in 1838. A witness from the Church Missionary Society quoted a letter from an unnamed missionary which stated that the population:

According to my own Observation at Rotorna and Rotoita and what I have gathered from the Natives, is as follows: Rotorna 1,600, Rotoita 1,200, Rotochu 150, Tarawera 1,200, Okotaina 150, Rotokakahi 150, Taupo 1,600. Of these One Third are fighting Men. (GBPP 1838/680: 251)

The Taupo figure is, therefore, acknowledged to be an estimate based on information supplied by neighbouring groups; the first missionary actually to visit the area was Thomas Chapman early in 1839. An assessment of the reliability of the figure depends on whether neighbouring communities could be expected to know how many warriors those around them could muster. The estimate is significantly smaller than those of Bidwill and Dieffenbach, both of whom travelled in the area, but there are other figures that suggest that it may be a reasonable approximation. Even Dieffenbach, who produced one of the higher estimates, conceded that "everywhere round Lake Taupo are small native settlements, but the population seems to be scanty" (Dieffenbach 1843 I: 360).

In 1842 J. Hamlin published a list detailing the estimated number of inhabitants in each area in the North Island (Hamlin 1842). He estimated the number of fighting men in the Taupo area at 600 and the population at 1800. Hamlin's method was to ascertain the number of fighting men and multiply that number by three to arrive at a figure for the total number of inhabitants. His figure for the population of the North Island was 120,000.

Another estimate of the population of Taupo is that of the Chief Protector of Aborigines in his "Return of the Native Population of New Zealand" (GBPP 1846/337: 47). This lists Taupo's population as 1500. The population of all areas amounted to 109,550.

The estimates of Hamlin and the Chief Protector of Aborigines were based on missionary records and so are not entirely independent estimates.

Fortunately there are population data for Taupo that are based on an actual head count (Table 2, Fig. 2). In an entry in his journal dated 15 December 1849 the Rev. A. N. Brown wrote that Mr Skinner, a Wesleyan missionary stationed at Rotoaira, had shown him "a Table of Statistics of Taupo. The population according to his census was 1104 at 24 places". The census was done at the end of March 1849 as it is noted as an item in the station's expenses (Skinner Journal). On 8 June 1849 the Resident Magistrate at Wanganui (Wyatt) forwarded to the Colonial Secretary "a census of the native population in the Taupo and Tuhua District" (NM 8 1849/599) but this appears to have been lost. A great deal of census data forwarded about this time was obtained from missionaries (e.g., NM 8 1851/667) and the census forwarded by Wyatt was probably Skinner's.

TABLE 2  
THE 1849 CENSUS (NM 8 1851/284)

Place	Tribe	Population
Motuopuhi	Ngatipehi	148
Poutu	"	43
Tokaanu	Ngatikarauhia	71
Waiariki	" & Tuharetia	47
Kowhe	Ngatihiniwa	31
Motutere	Ngatiterangiita	35
Orona	"	45
Rotongaio	Ngatitu & Ngatitekitekino	53
Hiruharama (Omaunu)	Ngatiraaotou & Ngatirangirangi	72
Oruanui	Ngatitepake	55
Wairewarewa	Wakapaewaka	23
Takapau	Ngatitahu	10
Pokuru	Ngatitepake	12
Tutukau	Wakapaewaka	56
Tuata	Ngatiraukauri	20
Apotea	Ngatiwairangi	22
Kurae	Matekiwaha	95
Taurunga	"	-
Ataipahi	Ngatipareuku	11
Pukioire	"	43
Umurua	Ngatitemaunga	41
Pukaunui	Ngatiparekawa	35
(including Wareroa)	{ Ngatiterangiiti	
	{ Ngatirua	
Pukawa	{ Ngatihinemihi	103
	{ Ngatitiramakina	
		1071

On 22 February 1851, census records for the Wanganui River, Tuhua, and Taupo were forwarded to the Colonial Secretary (NM 8 1851/284) by the Resident Magistrate at Wanganui (Wyatt had been replaced by Hamilton). Some of the data were obtained from the Rev. W. Kirk who had done a census of the Wanganui River above Pipiriki towards the end of 1849. Whereas Hamilton credits Kirk with having taken the census on the Wanganui, he merely notes that the Taupo data were obtained from Kirk and were "from census taken for Wesleyan mission". The Taupo census is reported to have been taken at the "end of

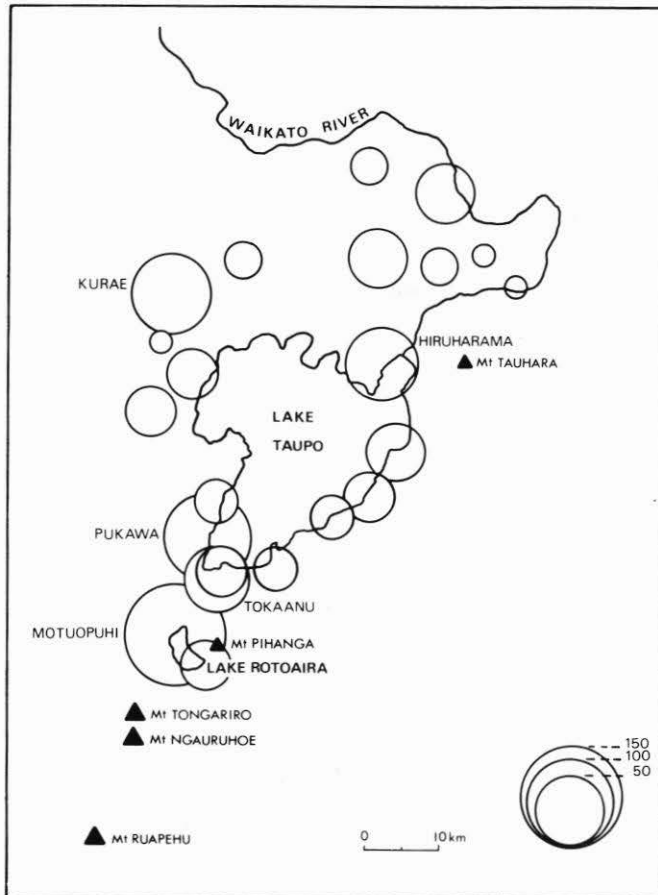


Figure 2: Distribution of population according to the 1849 census.

1849". It is unlikely that Kirk would take a census in an area assigned to a colleague. Kirk did visit Taupo in December 1849, by which time the decision to close the Rotoaira station had been made. However, Kirk was unaware of the decision until he reached Rotoaira (Skinner to Whiteley January 29, 1850 in Skinner Journal). Since it is known that Skinner did a census of the Taupo area at the end of March 1849 and another, of Tuhua, in May 1849, the data for Taupo and Tuhua obtained by the Resident Magistrate were presumably those collected by Skinner. There is, however, a slight difference in the population totals, as reported by Brown and the Resident Magistrate, and the reason for this is not known.

Pool (1977: 57) has argued that "unless there is evidence to the contrary, a systematic census must be accepted as more reliable than estimates". However, some under-enumeration is to be expected, as the population was very dispersed. The Rev T. S. Grace in his "Report of the Taupo District for 1855" (Grace 1928: 55-6) wrote that "The District of Taupo presents a large surface with a widely scattered population . . . Large congregations cannot be expected in Taupo on account of the scattered state of the population". The

areal coverage achieved by Skinner is such that it is reasonable to assume that the census gives a good indication of the order of population living in the vicinity of the lake.

The Skinner census was done, as other censuses at the time were, by visiting each settlement in turn and recording the number of inhabitants. Since some residents would be away, the numbers absent depending on the season, severe under-enumeration might be expected. Skinner noted the difficulties in a letter to Whiteley (March 1, 1849) that is preserved with the one surviving volume of his journal. He wrote that there were difficulties arising from "the fact of the natives at this season of the year being so much scattered—bird snaring, fishing—visiting". The surviving volume of Skinner's journal covers only the last two months of his stay at Rotoaira and so does not provide any other information on how the census was conducted. However, it appears that the visit of a missionary would bring people in from the out-settlements. At Hiruharama in 1846 a chief "sent out messengers to various small parties in the woods to assemble at his pa on Sunday" (Brown Journal November 26, 1846). Another way a missionary could organise to meet as many people as possible on a visit is reported: "one of our party preceded us to assemble the natives from their cultivations to the principal places which we propose visiting at Taupo" (Brown Journal November 25, 1847). The Resident Magistrate, discussing these difficulties, suggested 10–20 percent under-enumeration was likely in some of the areas covered by his figures. However, even 20 percent under-enumeration is probably on the low side given the scattered nature of the population around Lake Taupo and the practical difficulties of covering the area thoroughly. An under-enumeration of about 30 percent, which does not seem unreasonable given the greater difficulties at Taupo, compared with the Wanganui River, would give a maximum population of about 1500 in 1849.

There are a number of reasons why Dieffenbach's estimate was so wide of the mark. Dieffenbach's method depended on establishing the number of fighting men, and the use of a ratio to estimate the total population. The reliability of the method depends on how estimates of the number of warriors were arrived at, and whether the ratio of 1:4 that was used is valid. Pool (1977: 54) argues that Dieffenbach could hardly have counted all the warriors himself and few observers, whether chiefs or other persons, could be classified as reliable. The situation at Taupo when Dieffenbach was there was such that he could not have made an accurate estimate of the number of warriors. Te Heuheu, paramount chief of Ngati Tuwharetoa, was absent on a "war excursion" (Dieffenbach 1843 I: 336–7; see also Best in Taylor 1966: 309). Informants, for reasons of mana or prestige, may be expected to exaggerate the number of warriors. (The number of casualties inflicted on their enemies were also prone to exaggeration, for similar reasons.) Dieffenbach's estimate of 800 warriors is significantly higher than the missionary estimates of 500 to 600, and twice the figure suggested by Wakefield. Wakefield (1845 II: 107) was at Taupo later in 1841 and he noted that Waitahanui was "used as a city of refuge by all the inhabitants of Taupo and Roto Aera" and that "the whole force of Waitanui, without allies, amounts to little more than 400 fighting men" (see also Dieffenbach 1843 I: 363–4; Angas 1847 II: 125–7; Taylor Journal November 17, 1845). (By 1847 this role had ended as Taylor (Journal April 22, 1847) noted that Waimarino "and the pas at Pukawa & Waiariki are fenced in with the timber taken from Waitahanui the old pa for assembling the tribes in the time of Heuheu".) The probable error in Dieffenbach's figure for the number of fighting men is compounded by his use of the ratio of fighting men to total population of 1:4.

Pool (1977: 54) is prepared to accept a ratio of warriors to total population of 1:4. However the Skinner census revealed 428 adult males, 420 adult females, 125 male children,

and 98 female children. This is a ratio of adult males to total population of 1:2.5. The category of adult males may be used as a rough figure for the number of fighting men. Table 3 shows that 1:3 used by Hamlin and others is the better approximation. A revised estimate using Dieffenbach's figure of fighting men and the one in three ratio gives a figure of 2400. While this is much more in line with some of the other estimates it is still much higher than figures based on the 1849 census.

TABLE 3  
RATIO OF ADULT MALES TO TOTAL POPULATION

Date	Area	Sex ratio (Males per 100 females)	Ratio of adult males to total population	Source
1843	Wanganui River	120:100	1:2.3	Taylor Ms
1849	Taupo	107:100	1:2.5	NM 8 1851/284
1849-1851	Wanganui River, Tuhua	121:100	1:2.5	NM 8 1851/284
1850	Port Nicholson, Waikanae, Otaki, Manawatu, Rangitikei, Wairarapa	125:100	1:2.3	Kemp GBPP 1851/1420: 231-45
1857	Wanganui River, Tuhua	123:100	1:2.4	Fenton 1859
1874	"Upper" Wanganui River	125:100	1:2.4	AJHR 1874 G7: 16-7
1874	Taupo	108:100	1:2.9	AJHR 1874 G7: 12-3

### THE 1849 CENSUS: SOME PROBLEMS OF INTERPRETATION

Journals, reports, and published material from missionaries, travellers, and government officials provide valuable information on the size and distribution of the population, and the changes that were occurring, in the 1840s and 1850s. This information provides a means of checking the results of the 1849 census and suggests that some figures need to be looked at in more detail. Particularly valuable are the journals of the missionaries, although not all the relevant sections of their journals are extant. The record is also very uneven: there are areas, notably in the north-west, where there are a few meagre references to settlements about which little is known and whose locations have never been identified. There has been a previous study of Maori settlement in the vicinity of Lake Taupo (Ward 1956) but this dealt with a longer period (1830-1880) and was written without reference to many of the sources that are now available. Ward's map provided locations for a number of settlements that could not otherwise be located.

A comparison of the 1849 census results and information from other sources raises a number of questions that need to be answered if that census is to be considered a reliable guide to the size and distribution of population. A number of settlements visited by missionaries and travellers in the years around the date of the census are not listed in the census (Appendix 1). There is, for example, no listing for Ohaki, Te Hapua, Orakeikorako, or Waimahana in the north-east, or for Waihaha, Kawakaka, or Tuaropaki in the north-west, or for Poaru, Iwiwi, Waipapa, or Waimarino in the south. No other source suggests the existence of a large settlement at Kurae ("formerly called Tutakamoana") in



the north-west. This is not to suggest that these other sources are not without their problems: in the 1840s and 1850s, for example, the term *pa* was used to denote any Maori settlement which was sited in a defensive position or was enclosed by palisades or both. Angas (1847 I: 332) makes a distinction between *pa*, which were defended, and *kainga*, which were not enclosed, and had houses "scattered about". However, he does not consistently adhere to this distinction: Tutakamoana is described as a "small *kainga* . . . enclosed, upon the summit of a steep hill" (Angas 1847 II: 134). Taylor uses the terms village and *pa* interchangeably. Orona is described as a "miserable little village" (Taylor Journal March 15, 1849) and as a *pa* (Taylor Journal March 18, 1850). Wairewarewa is described as "a small village" (Taylor Journal March 15, 1850) and as a *pa* (Taylor Journal February 5, 1853). The result is that it is seldom possible to differentiate defended settlements from undefended settlements or, more importantly, small seasonally occupied out-settlements from settlements occupied all year round.

Many communities maintained a number of satellite or out-settlements which were occupied at various times during the year. When Dieffenbach (1843 I: 365) visited Motutere in May 1841 he found "the natives were few, as the greater part were living at a settlement in the neighbouring hills, where they had their plantations". Some years later Taylor (Journal March 19, 1850) visited Motutere and found that "nearly all the inhabitants were from home". It was not unusual to find settlements and out-settlements deserted, or nearly deserted. However, settlements might also be deserted for other reasons: when Hochstetter (1867: 384) visited Motutere in 1859 he found "not a single inhabitant, because the whole population had gone to a large Maori-meeting".

The use of a network of satellite settlements by a community means that it is more important to ensure that the community is included in the census than to have figures for all known settlements in the area. Settlements were also occasionally abandoned in favour of a new site but the new location was often near the previous site or within an apparently circumscribed area. In 1853 Taylor visited Orakeikorako and found "a newly built *pa* named Antioch with a doz. well built houses chiefly wharepuni, the old village seated amongst the boiling springs still remaining" (Taylor Journal February 5, 1853). Taylor had previously visited Orakeikorako (Taylor Journal March 15, 1850) but it is not listed in the 1849 census. The most likely explanation for this omission is that the community living at Orakeikorako in 1850 is listed under another name. An obvious candidate is Tutukau. There is a reference to a settlement on "the summit of Tutukau mountain, rising north of Orakeikorako" (Hochstetter 1867: 399-400) but this was a small, special-purpose, satellite settlement. It is a reasonable surmise that the Orakeikorako community appears in the 1849 census listed as Tutukau. There are, however, other settlements in the north-east such as Ohaki and Te Hapua that are not listed. Taylor found Ohaki deserted in 1845 and there were only six people there in 1849 (Taylor Journal November 20, 1845, March 16, 1849). Rough (1852: 24) found no one at Te Hapua in 1849. The inhabitants may have been only temporarily absent, but both Ohaki and Te Hapua appear to have been small settlements, and may have been out-settlements.

One anomaly that stands out is the figure for Kurae in the north-west. No other source indicates the presence of such a large settlement in this area. The figure may be an artefact of the way the census was conducted and the figure should probably be read as a total for more than one community.

The 1849 census also provides no listing for Waimarino, a settlement frequently mentioned by early travellers. The explanation appears straightforward. Up until 1849, and

again in the late 1850s, travellers along the eastern side of the lake visited a settlement called Waimarino which was situated on the north side of the stream of the same name (Ashwell Journal November 6, 1839; Wakefield 1845 II: 107, Selwyn 1847: 44; Taylor Journal November 17, 1845, December 22, 1847; Brown Journal November 26, 1845, November 23, 1846; Colenso Journal February 17, 1847; Smith 1953: 17; Hochstetter 1867: 384). At the time of the 1849 census, however, and for a few years after, the population of Waimarino appears to have been living at Korohe, south of the Waimarino stream. References to Waimarino cease and are replaced by references to Korohe (Taylor Journal March 14, 1849, February 2, 1853; Colenso Journal December 1, 1849; Brown Journal December 16, 1849). Korohe is listed in the 1849 census.

The area around the lake between Pukawa and Rotongaio, and south to Lake Rotoaira was regularly visited and the locations of settlements in this area can generally be identified. The 1849 census has figures for most of the settlements that appear regularly in contemporary accounts. However, most of the inhabitants of the Lake Rotoaira area appear to have been counted as residents of Motuopuhi, the principal settlement, and citadel. Later censuses adopted a similar approach with people counted as inhabitants of the settlement in which they usually resided.

The role of Motuopuhi in the settlement pattern is of some importance:

This peninsula, called Motu o Puhi, at its junction with the isthmus is defended by a very strong double fence. On it are the houses inhabited by the natives of the lake when compelled to take refuge there from the attack of hostile tribes. A canoe from the eastern shore soon answered our salutes from the fort, and took us over to a settlement called Tuku-tuku. (Wakefield 1845 II: 99)

Angas in 1844 found that the "pah is strongly fortified, and at the time of my visit the natives were busy in completing and repairing the fortifications; the fact being . . . that they were expecting a sudden attack from the Waikatos" (Angas 1847 II: 121; see also Taylor Journal June 27, 1846).

There are a number of early descriptions of the surrounding area. Dieffenbach (1843 I: 346) noted that "Roto-Aire was bordered on one side by a stately forest, in every part of which patches of native cultivation and houses were seen . . . Several pas were visible . . . and on a rocky tongue of land, which stretched into the lake, there was a large fenced-in village". This is confirmed by Wakefield (1845 II: 99): "The undergrowth has been cut away, but the tall forest trees, chiefly matai or mai, remain standing and still alive; the plantations and villages are disposed among their trunks, on the acclivity which rises from the side of the lake to Pihanga". Taylor (Journal March 1, 1849) also describes "the beautiful mountains . . . with their sides clothed with timber and their bases reaching the water's edge and which for the most part are in a high state of cultivation, with large lofty matai trees rising majestically in scattered clumps . . .". The degree of dispersal of the population during certain times of the year is indicated by Skinner's comment (Journal November 11, 1849) that "most of my people were in today from the outposts". The presence of cultivations, isolated houses, and settlements scattered over the landscape would have contributed to the impression of a large population. Bidwill (1841: 40-1) and Dieffenbach (1843 I: 366) made particular mention of the large areas of bush being burnt off around Taupo to grow potatoes and both produced high population estimates.

#### WARFARE, NATURAL DISASTERS, AND EPIDEMICS

In the 1840s two events occurred that are known to have resulted in a significant loss of life.

On 24 August 1840 a taua from Taupo was largely wiped out at Potaka in South Taranaki. In a letter to the Church Missionary Society dated 20 September 1840 (Missionary Register 1842: 62) the Rev. J. Mason estimated the Taupo dead at about 100. The Rev. R. Maunsell, after returning from a visit to Taupo, wrote in a letter dated 12 July 1841 (Missionary Register 1842: 474) of "the death of sixty of their number". There is a tendency for informants to be unreliable in matters involving numbers and this is particularly so when figures are used, not in a precise fashion, but as a means of indicating the significance of an event, much in the manner that resulted in chronic exaggeration of numbers in medieval chronicles. It is difficult, if not impossible, to estimate how many died at Potaka, just as it is difficult to put a figure on the number of casualties arising from the impact of musket warfare in the 1820s and 1830s, but most figures at the higher end of the range must be considered suspect.

In May 1846 Te Rapa was buried by a landslide and some 55 people were killed including the paramount chief of Ngati Tuwharetoa, Te Heuheu (Taylor Journal June 27, 1846; Brown Journal November 21, 1846). This disaster, unlike that which befell the taua and produced a heavy toll of adult male dead, struck a much broader section of the population.

Visitors to Taupo in the early 1840s report the population was generally healthy (Dieffenbach 1843 I: 361; Angas 1847 II: 111, 118). However neither Dieffenbach nor Angas were at Taupo for any length of time and by the late 1840s there are records that suggest epidemics were frequent. Skinner (Journal November 29, 1849) wrote of "the epidemics with which we have been and still are visited". "There is", he noted, "still a great deal of illness, at Taupo, and Rotoaira". Three days later he reported that "the sick are increasing" and the following day (Skinner Journal December 2, 1849) he continued "the disease with which the people are affected is the Inflammatory Fever. It was at this time last year that it raged generally throughout the lake; it was then preceded by the Influenza, as it has also been this year". Skinner reports many people falling ill and the pressure he was under to care for all the sick. It may be significant, however, that despite the depressing situation he makes no comment that would suggest a large number of deaths.

Influenza was widespread in the Taupo area when Taylor was there in early February 1853. Of Orona he wrote "the influenza has caused many deaths here" (Taylor Journal February 3, 1853). The widespread influenza reported by Taylor was probably part of the pandemic which raged through New Zealand in 1852-3 and which is reported to have caused heaviest mortality among the old and the young. High incidence and death rates amongst the very young and very old is the normal pattern for influenza (Pool 1977: 126-7).

### LATER CENSUS RECORDS

Regular censuses were taken throughout the country from about 1874. These provide a useful check on earlier estimates and enumerations. Unfortunately the numbers reported in many parts of the country fluctuate markedly in the 1870s and 1880s and the Taupo figures are no exception. The standard achieved seems to have varied from area to area and through time. The 1874 and 1878 censuses at Taupo (AJHR 1874 G7: 12-3; AJHR 1878 G2: 24) reported figures of 850 and 805 respectively but these have to be considered of dubious reliability as the 1881 census (AJHR 1881 G3: 24-5) produced a figure of about 1400. The Resident Magistrate reported "determined opposition" to the 1878 census (AJHR 1878 G2: 6) and a detailed examination of the 1874 and 1878 censuses reveals that

there are only three differences between the two lists. These figures should almost certainly be regarded as providing a minimum figure for the population.

The difficulty with using the later censuses as a check on the 1849 results is that these present almost as many problems in interpretation. There is also the problem that the wars of the 1860s, in which some Ngati Tuwharetoa were involved against the government, represent something of a watershed. After the wars there were considerable movements of people from areas confiscated by the government. Some of the displaced people moved to the Taupo area. Meade, who visited Waihaha in 1865, reported that the settlement "belongs nominally to a Queenite tribe, the Ngatiterakaiaki, but is mainly peopled by the men who escaped from Orakau and refugees from other places in the Waikato country now occupied by our troops" (Meade 1870: 83).

The 1881 census was more thorough than any done before. However, the suspicion must be that there is over-enumeration. Some of the 1881 figures seem dubious given what is known from other sources and it is possible that there was duplication of names under different hapu: a difficulty encountered in 1878 in other areas (e.g., AJHR G2: 6) and specifically mentioned by the Resident Magistrate (Scannell) as a possibility that may have occurred in some parts of his district. However, Scannell did not think any "large errors" had been made and felt that the difference between his figures and those reported earlier were due to his having achieved better coverage of the area (AJHR 1881 G3: 5). Nevertheless, the 1881 figure should probably read as a maximum. The results of the three censuses indicate a population of somewhere between 800 and 1400 in the 1870s and early 1880s.

## DISCUSSION

In the 1840s and 1850s there was no doubt among observers that the Maori population was decreasing. There was, however, little agreement about the size of the population. The question had important political connotations and most missionary and government estimates were considerably higher than most settlers would allow. A spokesman for the settlers suggested that Sir George Grey "had for his aim to make the number of natives, relatively to the Europeans, appear as large as possible" (GBPP 1851/1420: 87) and went on to add that recent counts made it doubtful "whether there are at this moment more than from 60,000 to 70,000 natives". The settlers' motives are suspect but the estimate of 60,000 to 70,000 was confirmed by events. By the early 1850s partial censuses were available for a number of areas and these had consistently produced figures very much lower than had been anticipated. As a result, estimates made in the early 1850s were very much lower than those made in the two previous decades. In 1843 Dieffenbach had published an estimate of 114,890 but just over a decade later Taylor (1855: 468) arrived at a figure of 65,000 and Fenton's census produced a total of only 56,049 (Fenton 1859). The results of Fenton's census, for all its deficiencies, make any estimate for 1840 that is above 80,000, or even 70,000, suspect. It is my view that the Maori population in 1840 was of the order of 70,000, probably derived from a 1769 population of the order of 120,000 (cf. Pool 1977: 194-5). The alternative view is that the changes in the figures indicate a continuing massive decline in the Maori population.

The documentary evidence suggests that the population was declining in the 1840s and 1850s. Warfare, natural disasters, and epidemics produced sharp fluctuations in the crude death rate. However, the argument for a massive decline depends on Dieffenbach's estimate being a reasonable one. Pool (1977) has argued that Dieffenbach's figures were

scarcely conceivable given the findings of Fenton's census and this is supported by the Taupo data. There may be regional differences, but there is no evidence of a massive decline in the population of the Taupo area in the 1840s and 1850s. Using the available estimates and the 1849 census data as constraints, a number of models fit the evidence. A population of about 1600 in 1840, for example, with an average annual decrease of around 1.2 percent would indicate a population of about 1400–1500 in 1849, dropping to 1200–1300 by the end of the 1850s.

## CONCLUSIONS

The documentary evidence on the size of the population in the vicinity of Lake Taupo includes a number of estimates, and one census. Information from other sources indicates that the census is a reasonably reliable guide to the order of population in the region. A minimum figure of 1100, and a likely maximum figure of 1500, are indicated for 1849. These figures allow for uncertainties in the data and should allow for any gaps in areal coverage. The upper end of this range is reasonably close to figures from missionary sources of the late 1830s and early 1840s calculated from estimates of the number of fighting men. The degree of population decline adds a further variable but the population of Taupo throughout the 1840s and 1850s was probably somewhere between 1100 and 1600. This is lower than the figure allowed in the first national census of 1857–8.

### APPENDIX I

#### REFERENCES TO NAMED SETTLEMENTS BY EARLY VISITORS TO TAUPO

(Settlements listed in the census of 1849 marked with an asterisk)

##### SETTLEMENTS IN THE VICINITY OF LAKE ROTOAIRA

Motuopuhi*	Dieffenbach (1843 I: 346) in 1841. Wakefield (1845 II: 99) in 1841. Taylor Journal November 8, 1843; July 26, 1846; March 10, 1849; January 26, 1852. Angas (1847 II: 121) in 1844.
Poutu*	Wakefield (1845 II: 118) in 1842. Taylor Journal November 12, 1845; July 4, 1846; November 6, 1852; February 1, 1853. Brown Journal November 25, 1845; November 21, 1846; November 15, 1849. Colenso Journal February 18, 1847, November 29, 1849. Skinner Journal November 15, 1849.
Kotukutuku	Wakefield (1845 II: 99) in 1841.
Watiwati	Brown Journal November 25, 1845.
Heretoa	Taylor Journal January 26, 1852.
Te Puna	Taylor Journal January 26, 1852.

##### SETTLEMENTS IN THE TOKAANU AREA AND ALONG THE EASTERN SHORE

Tokaanu*	Wakefield (1845 II: 103) in 1841. Taylor Journal November 8, 1843; November 12, 1845; June 27, July 3, 1846; April 22, 1847; March 12, 1849; February 2, 1853. Cooper (1851: 290) in 1850. Smith (1953: 14) in 1858. Hochstetter (1867: 369) in 1859.
Waiariki*	Wakefield (1845 II: 106) in 1841. Taylor Journal April 22, 1847; February 1, 1853. Brown Journal November 14, 1849.

- Waipapa Brown Journal November 21, 1846; November 14, 1849. Skinner Journal December 2, 16, 1849.
- Korohe\* Taylor Journal March 14, 1849; February 2, 1853. Colenso Journal December 1, 1849. Brown Journal December 16, 1849.
- Waimarino Ashwell Journal November 6, 1839. Wakefield (1845 II: 107) in 1841. Selwyn (1847: 44) in 1843. Taylor Journal November 17, 1845; November 22, 1847. Brown Journal November 26, 1845; November 23, 1846. Colenso Journal February 17, 1847. Smith (1953: 17) in 1858. Hochstetter (1867: 384) in 1859.
- Motutere\* Ashwell Journal November 6, 1839. Williams (Rogers 1961: 471) in 1840. Dieffenbach (1843 I: 363) and Best (Taylor 1966: 313) in 1841; Brown Journal May 18, 1841; November 27, 1845; November 24, 1846; December 19, 1849. Selwyn (1847: 43) in 1843. Taylor Journal November 18, 1845; April 23, 1847; March 14, 1849; March 19, 1850. Colenso Journal February 17, 1847; December 3, 1849. Cooper (1851: 270) in 1850. Smith (1953: 17) in 1858. Hochstetter (1867: 384) in 1859. Mentioned by Wakefield (1845 II: 107).
- Orona\* also Oroua, Hamaria, and Totara. Brown Journal May 17, 1841; November 27, 1845; November 25, 1846; November 27, 1847; November 12, 1849. Selwyn (1847: 42) in 1843. Taylor Journal November 18, 1845; April 23, 1847; March 15, 1849; March 18, 1850; February 3, 1853. Colenso Journal February 16, 1847. Smith (1953: 17) in 1858. Hochstetter (1867: 384) in 1859.
- Rotongaio\* Ashwell Journal November 5, 1839. Dieffenbach (1843 I: 371) in 1841. Brown Journal May 15, 1841; December 1, 1845; December 26, 1846. Selwyn (1847: 42) in 1843. Taylor Journal November 19, 1845. Smith (1953: 19) in 1858. Hochstetter (1867: 386) in 1859.
- Waitahanui Brown Journal November 27, 1847; November 12, 20, 1849. Colenso Journal December 4, 1849. Smith (1953: 19) in 1858.
- Motukino Colenso Journal December 4, 1849. Brown Journal December 20, 1849.

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 SETTLEMENTS IN THE NORTH-EAST

- Hiruharama\* also Omaunu or Rangatira. Williams (Rogers 1961: 472) in 1840. Brown Journal November 20, 1845; November 26, 1846; November 26, 1847; November 10, 1849. Rough (1852: 26) in 1849. Cooper (1851: 256, 260) in 1850. Taylor Journal March 18, 1850; February 3, 1853.
- Tapuaecharuru Hochstetter (1867: 388) in 1859.
- Takapou\* Selwyn (1847: 39) in 1843. Taylor Journal November 20, 1845; March 16, 1849. Brown Journal November 30, 1846; November 25, 1847. Cooper (1851: 252) in 1850.
- Ohaki Taylor Journal November 20, 1845; March 16, 1849.
- Orakeikorako Taylor Journal March 15, 1850; February 5, 1853. Hochstetter (1867: 395) in 1859.
- Waimahana Greenwood (1850: 60).
- Oruanui\* Hochstetter (1867: 394) in 1859.
- Wairewarewa\* Brown Journal November 19, 1845; November 8, 1849. Taylor Journal March 15, 1850; February 4-5, 1853.
- Te Hapua Brown Journal November 17, 1846. Rough (1852: 24) in 1849.
- Tutukau\* Hochstetter (1867: 399-400) in 1859.

Tuata\* Brown Journal November 17, 1846.

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SETTLEMENTS IN THE NORTH-WEST

- Tuaropaki Ashwell Journal November 2, 11, 1839. Brown Journal May 26, 1841.
- Te Puna Buller (1878: 72-3) in 1840.
- Kohuru Taylor Journal January 29, 1852.
- Ahirara also Oraruhe. Dieffenbach (1843 I: 325) and Best (Taylor 1966: 302) in 1841.
- T'Muti Dieffenbach (1843 I: 326) and Best (Taylor 1966: 304) in 1841.
- Te Pa a te Atua Brown Journal November 18, 1846.
- Tutakamoana\* also Kurae. Ashwell Journal November 2, 1839. Dieffenbach (1843 I: 330) and Best (Taylor 1966: 306-7) in 1841. Brown Journal May 25, 1841. Angas (1847 II: 134-5) in 1844. Taylor Journal April 26, 1847. Cooper (1851: 310) in 1850. Greenwood (1850: 62).
- Otaipuhi\* Brown Journal May 24, 1841.
- Kawakawa Ashwell Journal November 5, 9, 1839. Brown Journal November 19, 1846.
- Waihaha Brown Journal November 21, 1845; November 20, 1846.

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SETTLEMENTS IN THE WEST AND SOUTH-WEST

- Umurua\* Angas (1847 II: 130) in 1844. Cooper (1851: 306) in 1850. Taylor Journal January 27, 1852 (uncertain). Mentioned by Skinner Journal November 17, 1849.
- Whareroa\* Brown Journal November 22, 1845. Mentioned by Wakefield (1845 II: 107).
- Pukawa\* Ashwell Journal November 9, 1839. Brown Journal May 22, 1841; November 21, 1846; November 13, 1849. Wakefield (1845 II: 104) in 1841. Taylor Journal July 1, 1846; April 21, 1847; March 12, 1849; March 19, 1850; January 27, 1852. Cooper 274-5) in 1850. Smith (1953: 14) in 1858. Hochstetter (1867: 359) in 1859. Mentioned by Skinner Journal November 17, 1849.
- Te Rapa Bidwill (1841: 42) in 1839. Ashwell Journal November 6, 1839. Brown Journal May 20, 1841; November 22, 1845. Dieffenbach (1843 I: 336) and Best (Taylor 1966: 309) in 1841. Wakefield (1845 II: 104-5) in 1841. Taylor Journal November 9, 1843; November 14, 1845. Selwyn (1847: 45) in 1843. Angas (1847 II: 110) in 1844.
- Koroiti Smith (1953: 15) in 1858. Hochstetter (1867: 368) in 1859.
- Iwiiwi Taylor Journal November 8, 1843; April 21, 1847. Angas (1847 II: 108) in 1844.
- Poaru Taylor Journal April 20, 1847; March 19, 1850. Cooper (1851: 302) in 1851. Smith (1953: 12) in 1858. Hochstetter (1867: 359) in 1859. Crawford (1880: 145) in 1862.

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Abbreviations:

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 GBPP Great Britain Parliamentary Papers

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