

GEOLOGICAL FEATURES AND RESEARCH

How Many Deaths Were Caused by the Tarawera Eruption?

Most texts and brochures describing the Tarawera eruption of 10 June, 1886, record that it resulted in about 150 fatalities (e.g., Scott & Nairn, 1989; Ansell & Taber, 1996). Indeed, a figure of 153 deaths is recorded at the excellent new visitors' centre at the Buried Village, Te Wairoa, and in a number of other contexts. Elsewhere, numbers ranging from as few as about one hundred to possibly 'thousands' of deaths have been suggested (e.g., Houghton & Johnston, 1999).

What was the precise number of deaths caused by the 1886 Tarawera eruption? The strict answer is that no one knows, but it is possible to obtain a reasonable estimate. Ron Keam (1988) listed 108 individuals as fatalities based on extensive research undertaken for his book "Tarawera". He described in detail how this figure was obtained and he listed all the known casualties in 'Appendix M' (pp. 388-390) of the book, together with the sources for the numbers. Since "Tarawera" was published, however, Ron has been shown other partial casualty lists which included some names additional to those recorded in Appendix M. Uncertainties arise because some of the Maori individuals were probably known by one name in one group and by another name in another group, and hence there could be more names on the lists than there were people. Also it is certain that there was some double counting in deriving the oft-quoted figure of 153 fatalities. On the other hand there still could be a handful of omissions.

On the basis of the lists published in "Tarawera" and subsequent information, our best estimate for the death toll is about 120 casualties. All but seven of these fatalities were Maori or part-Maori. About thirty people were residing at locations within the boundaries of the craters that were formed on the night of the eruption (Fig. 1), and their bodies would have been blasted into the sky. Many other bodies of people residing outside the craters were never recoverable because of the intensity of the scorching pyroclastic surges that accompanied the Rotomahana phase of the eruption, and because of deep burial by tephra fallout.

It is evident from Figure 1, which shows the locations of the villages and associated fatalities in the Tarawera area, that the known deaths occurred in a zone extending no more than ~10 km from the locus of the Rotomahana eruptions. Tribal oral accounts (e.g., Ngati Hinemihini) that state that the 'true' death toll numbered many hundreds or even thousands (Houghton & Johnston, 1999) can be disproven using an approximate census undertaken by the Resident Medical Officer at Rotorua shortly before the eruption, and by several other means including Government censuses conducted in 1881 and 1886. Whilst accepting that some omissions from the casualty lists are likely, it is impossible that there could have been any large number of other Maori living within

this relatively small zone of destruction.

We acknowledge that the Tarawera eruption had a profound and long-lasting impact on Maori in the region (Keam, 1988; Lowe *et al.*, 2001), and that trauma was felt throughout the extensive zone of tephra fallout in the Bay of Plenty and eastern North Island (Fig. 1), but this fact must not be allowed to excuse baseless and fanciful inflation of the number of deaths.

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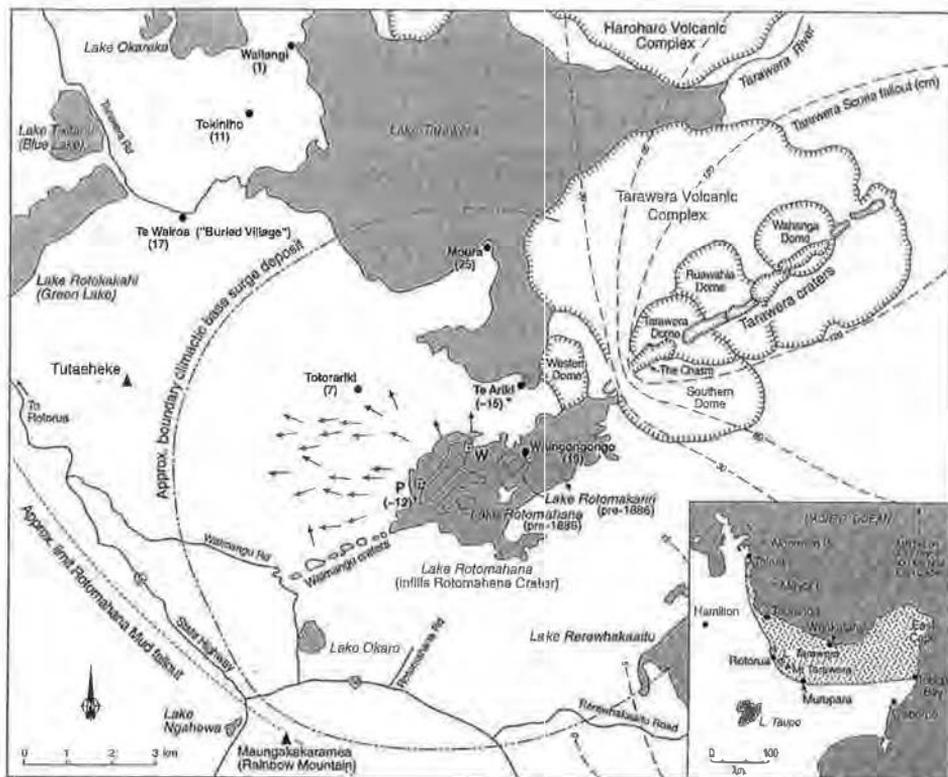


Fig. 1. Map of the Tarawera area (from Lowe et al., 2001) showing locations of the main craters of the 10 June, 1886, fissive eruption across Tarawera mountain, Rotomahana Crater (including pre-eruption lakes Rotomahana and Rotomakara), and Waimangu craters.

The boundary line of the base surge deposit resulting from the initial cataclysmic Rotomahana explosion is based on data in Smith (1886) and Keam (1988) (see also Rossee, 1999); the bold arrows represent current directions inferred from cross-bedding of proximal surge deposits as mapped by Nairn (1979).

The southwestern fallout limit for Rotomahana Mud and the isopachs (cm) for Tarawera Scoria (both members of Tarawera Tephro Formation: Froggatt & Lowe, 1990) are from Thomas (1888) and Cole (1970), respectively.

The location of villages and known fatalities (in parentheses) are based on Keam (1988). There was an additional death at an unknown locality.

W, White Terrace (Te Tarata); P, Pink Terrace (Otukapuarangi).

Inset shows eastern North Island and the mapped limits (stippled) of tephra fallout from the 1886 Tarawera eruption (Thomas, 1888). Ashfall at sea was recorded on S.S. Southern Cross at East Cope, on the schooner Julia Pryce as indicated, and on S.S. Waimea about 1000 km out from Auckland en route to London (Keam, 1988).

*On the night of the eruption nearly half of Te Aroki's 27 residents were encamped at Otukapuarangi (Pink Terrace) alongside Lake Rotomahana (Keam, 1988).