THE PALYNOLOGY OF TWO WHANGAREI CRATERS, NORTHLAND, NEW ZEALAND.

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The Swamp Forest in Maungatapere Crater, Whangarei
Photographer; R. Stewart 2011-12-08.

ABSTRACT

Whangarei lies within the Puhipuhi-Whangarei Volcanic Field, one of two fields located in Northland. The purpose of this project was to use a palynological study to provide information on the minimum ages of the young Whangarei cones, their vegetation history, and the approximate date of human arrival. Wetlands in the craters of the Maungatapere and Rawhitiroa basaltic cones were selected for this study since they both occupy discrete areas which only collect sediment from within their respective cones. A single peat core from each wetland was processed for fossil pollen and radiocarbon dating.

Radiocarbon dating was performed by the University of Waikato, providing minimum ages for the volcanoes. The date for the base of the Maungatapere core was 10530 ± 136 cal. yr BP, and an age of 2775 ± 52 cal. yr BP was determined for the basal peat from Rawhitiroa. K-Ar dating performed previously indicated that these cones were about 0.30 my old.

The pollen data indicated that a kauri-conifer-broadleaved forest was consistently present around Whangarei during the Holocene. At Maungatapere the arrival of Maori at c. 1360 AD was inferred from the marked decrease in *Dacrydium cupressinum* and the appearance of new species. This was an important horticultural site and was not repeatedly burned. At Rawhitiroa, the arrival of Maori possibly at *c*. 1200 AD was indicated by a decline in forest trees and the increased abundance of *Pteridium esculentum* and charcoal fragments. This occurred prior to the deposition of the Kaharoa Tephra, the presence of which was noted in the Rawhitiroa core.

The Maungatapere wetland is currently a fertile swamp forest while the Rawhitiroa wetland is an infertile bog dominated by *Sphagnum* and sedges. The difference in the fertility of the two wetlands can be partially attributed to the activities of humans. Repeated forest fires at Rawhitiroa increased waterlogging and stimulated the growth of herbaceous wetland vegetation, causing the rapid build-up of peat and infertile conditions. The forest at Maungatapere was not repeatedly burned and the wetland became drier over time, maintaining its fertility.

The incomplete core of peat infill at Maungatapere was a limitation of this project.

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The coring of Maungatapere cone was only made possible through permission from the Department of Conservation and the Ngatiwai Trust.

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