



NEW ZEALAND
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NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION NEWSLETTER



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INTERIM NOTE ON SITE RECORDING IN THE WAIKATO
BY MEANS OF AERIAL PHOTOGRAPHY

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Background

With the aid of a grant of \$1800 from the New Zealand Historic Places Trust, staff at Waikato Art Museum have completed the first stage of a comprehensive aerial photographic survey of archaeological sites in the Waikato. A full report on the results is now in preparation.

The idea for the project was conceived in 1977 when some four months were spent methodically scanning Lands and Survey aerials of the region in an attempt to rapidly update and extend the Waikato File of the Association's Site Recording Scheme. As a result, more than 600 new sites were located and provisionally added to the record, but the satisfaction derived from such a dramatic gain in numbers was short-lived. Nearly 95% of all major sites on file were now unaccompanied by illustrative material of an acceptable standard. Since our own resources for conventional site recording are limited, this presented us with a problem which would take an estimated thirty years to resolve.

At the same time, a significant discovery was made in the course of comparing sites on successive sets of aerial photographs taken at regular intervals since the early 1940s. It was observed that an unexpectedly large number of sites in this region had, within the last forty years, undergone modification in varying degrees by a wide range of human and natural agencies. Clearly, there existed an opportunity here to obtain data on the processes of site destruction in New Zealand - a problem of concern to us all whether at the level of site recording, research or site management but one which, so far, we have not been able to assess objectively.

Encouraged by the results of a pilot project undertaken in the summer of 1977 to determine the cost-effectiveness of low-altitude, intensive aerial photography, the present survey was designed to supplement the existing records of sites on file, locate and record as many new sites as possible and determine the nature and extent of changes over the last forty years in the condition of a large sample of archaeological sites.

Method

In May and June, when conditions (apart from perishing cold) were ideally suited to aerial photography, seven flights (totalling 21 hours) were made in a chartered 'Cessna 152' along carefully planned routes by a crew comprising the pilot, museum photographer Kees Sprengers, and myself as navigator/comptroller. Flying at an altitude of 150-300m, each site was approached from the south-west and photographed from an oblique angle when it came into line between the sun and the slowly circling aircraft. All sites showed to advantage within an approximately 45 degree arc of the aircraft's flightpath although some, by virtue of their good state of preservation, were obviously more photogenic than others (see Cover and Plates 1-3). On average, a site was being circled twice and photographed for every three minutes in the air. Hence it was essential to maintain a log for each flight. Films were developed and proof-sheets printed for site identification between flights. Whilst the experience was exhilarating (something akin to 'barn-storming'), the work tended to be demanding both physically and mentally.

Results

Final figures are not yet at hand but some 350 sites (mainly pa and military redoubts) were photographed within an area bounded by the towns of Ngaruawahia, Morrinsville, Matamata, Tirau and Otorohanga. More than 60 of these are new sites discovered en route. In spite of greatly escalated costs in aircraft charter rates, photographic materials and insurance premiums, the cost of producing a minimum of two prints (210 x 150mm) and two 35mm colour transparencies for each site was kept close to the estimated figure of \$5.00 per site. This, of course, does not take into account such hidden costs as staff time, the input of which has been considerable.

This new material has useful applications in such areas as file-keeping, education and research. It has enabled us to rapidly update, at reasonable expense, a fifth of the current register of archaeological sites in the Waikato. It has also provided the Art Museum and the New Zealand Historic Places Trust with resource material for public lectures, exhibitions, publications and audio-visuals. Finally, it has made available a wealth of new data for research into various aspects of archaeology in the Waikato.

It is in this last respect, rather than the picture postcard potential, that the significance of the survey is to be sought. The study currently being undertaken on site preservation involves the careful

comparison of these new photographs with enlarged prints of sites showing on Lands and Survey aerials taken during World War II. With the permission of the Surveyor General, the latter have been reproduced using a macrolens.

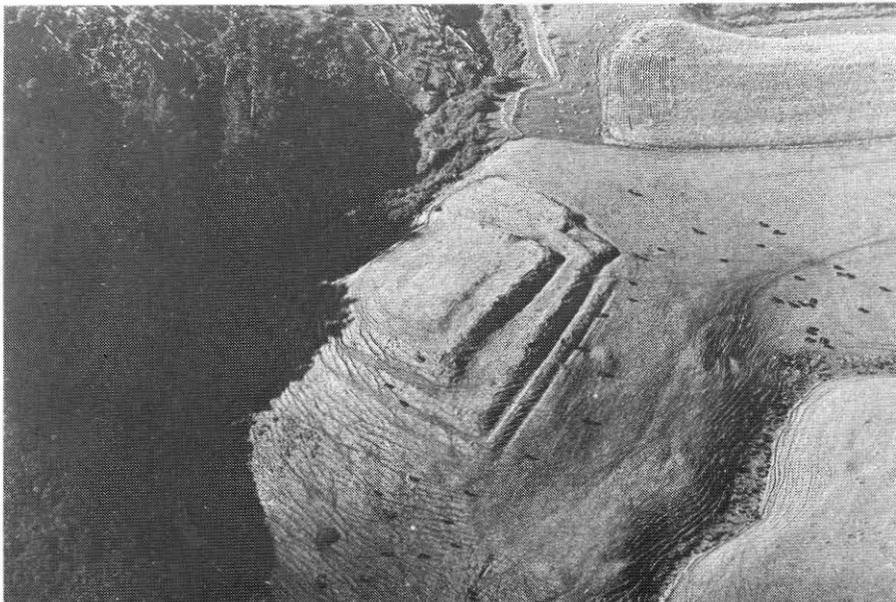
For the purpose of this study, the inland Waikato is divided into three topographical zones - the lowland plain between the Waikato and Waipa Rivers, the undulating hill-country, and the highland ranges or volcanic cones. The agencies effecting changes in the condition of archaeological sites vary between these zones as a result of differences in contemporary land use. In identifying the specific causes for damage to archaeological sites and by quantifying the rate of destruction over the last four decades, it is hoped that we can assess the scale of the problem in the inland Waikato and provide a benchmark against which the situation in other areas of New Zealand (e.g. the coast) might be profitably compared. We hope that this will lead to more informed discussion on the kinds of objectives and strategies needed for the effective management and future utilisation of a rapidly diminishing resource.



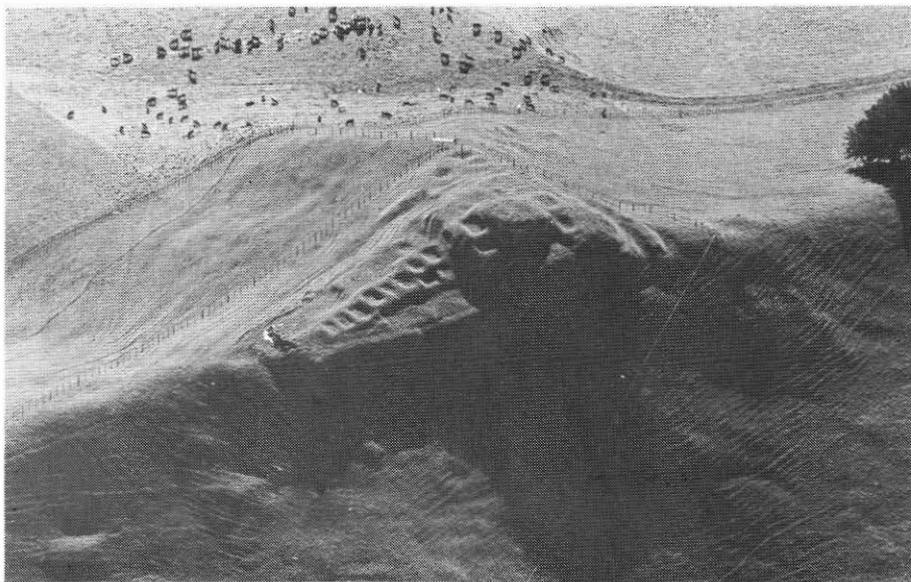
OTATARA Plate 2. Aerial photograph RNZAF 18 J/10, taken 3 February 1936.



WAIKATO AERIAL SURVEY Plate 1. N66/24 — one of several major pa at the western edge of the Matamata Plain.



WAIKATO AERIAL SURVEY Plate 2. N74/67 — headwaters of the Mangaohoi Stream below Maungatautari.



WAIKATO AERIAL SURVEY Plate 3. N66/20 — typical of the smaller pa in the Tirau district.