

GeoSciences 2014

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Field Trip 3

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COAST: STONY RIVER TO MOTUNUI



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Cover photo: View up Stony River, from Saunders Road. Photograph: Vince Neall.

Bibliographic reference:

Neall, V.E. (2014). Coast: Stony River to Motunui. In: Holt, K.A. (compiler). Field Trip Guide Volume, GeoSciences 2014 Conference, 24th – 27th November 2014, Pukekura Raceway and Function Centre, New Plymouth, New Zealand. Geoscience Society of New Zealand Miscellaneous Publication 139B. pp 1 – 4.

Introduction

This trip has been devised to overcome coastal sections at high tide, around 11.38am. Thus, the trip is organised in a flexible fashion and opportunities to stop at new exposures along the route will be taken where possible. The trip departs New Plymouth on the Surf Highway (State Highway 45), passing through Oakura and Okato. Along this route the road passes over an extensive fan of the Maitahi Formation (see later) that makes up the Pouakai ring plain.

At Okato, the route passes on to the Egmont ring plain. Here the principal terrain is Pungarehu Formation overlain by variable thicknesses of Warea Formation in the swales. This is both incised and buried by <500 year-old flood deposits of the Hangatahua Formation. These comprise extensive gravels and sands in the Okato district emplaced in a “deltaic” fashion across the landscape.

Reference: Neall, V.E. (1979). Sheets P19, P20 and P21 New Plymouth, Egmont and Manaia (1st Ed.), `Geological Map of New Zealand 1:50,000'. 3 maps and notes (36p). N.Z. Department of Scientific and Industrial Research, Wellington.

Route turns east at Puniho Road and increases in elevation towards Egmont National Park boundary.

STOP 1: Visit to small quarry in distal block-and-ash flow deposits of the Maero Formation, exposed south of Puniho Road.

Returning down Puniho Road to Wiremu Road, route turns northwards to cross Stony River. Turn right into Saunders Road and continue across ford to the Blue Rata Reserve.

STOP 2: Visit cliff sequence in river bed at top of Saunders Road. (see Figure 1 from Neall 1999).

Returning down Saunders Road, take northern route along Carrington Road.

STOP 3: Section on Carrington Road to show deposits of the Katikara Formation.

Reference: Neall, V.E. (1975). Climate controlled tephra redeposition on Pouakai ring plain, Taranaki. *N.Z. Journal of Geology and Geophysics* 18(2): 317-26.

Continue along Carrington Road to Pitone Road, turn left. Descend from the mid-slopes of the Pouakai Range, with Kaitake Range to right and the cone of Pukeiti visible along the journey. At Surf Highway junction, turn right and travel north to Oakura River mouth.

STOP 4: LUNCH, followed by walk along shoreline to Tapuae Stream, visiting type locality of Maitahi Formation, and examination of the largest megaclasts known from Taranaki province.

References supplied:

Gaylord, D.R., and Neall, V.E., 2012. Subedifice collapse of an andesitic stratovolcano: the Maitahi Formation, Taranaki peninsula, New Zealand: *Geological Society of America Bulletin* 124: 181-199.
Gaylord, D.R., Neall, V.E., and Palmer, A.S. 2014. The Middle Pleistocene Maitahi Formation, Taranaki, New Zealand: a new formal lithostratigraphic unit. *New Zealand Journal of Geology & Geophysics*. DOI:10.1080/00288306.2014.914041.

Board vehicle and travel northwards through New Plymouth to Waitara, passing over volcanic debris-avalanche deposits of the Okawa Formation. Pass the Motunui Methanol Plant and turn north on Turangi Road to coast.

STOP 5: Here a sliver of the marine Inaha Formation is preserved with fossil cliff to Rapanui Formation, cut in an older volcanic debris-avalanche deposit, named the Motunui Formation. The latter is the oldest volcanoclastic deposit clearly attributed to a source from Egmont Volcano.

Reference:

Neall, V.E. and Alloway, B.V. (2004) Quaternary geological map of Taranaki, 1:100000. *Institute of Natural Resources –Massey University, Soil & Earth Sciences Occasional Publication No. 4.*

Upon departure from Turangi Road, one can view further inland the sequence of progressively older marine benches that are preserved on the extensive interfluvies of this district.

Returning along State Highway 3, route turns into Waitara. If possible, route will enter private farm property for easy access to coast.

STOP 6: Airedale Reef. The coastal exposure here at low tide shows the cover bed stratigraphy overlying the Okawa Formation, which in turn overlies the lignite and buried forest at Airedale Reef. “Pollen from the litter of (the) forest with stumps in place” indicates the trees are mainly rimu (*Dacrydium cupressinum*) and rata (*Metrosideros robusta*) (Grant-Taylor 1978). This is now interpreted as a post-oxygen isotope sub-stage 5e forest (Alloway and Neall 1994). An excerpt (pages 118-121) from Alloway and Neall (1994) will be distributed to participants; the relevant figure is here reproduced as Figure 2.

References:

Alloway, B.V. and Neall, V.E. 1994. Late Quaternary volcanoclastic stratigraphy of central and north-east Taranaki. Pp. 97-126 *Geological Society of New Zealand Miscellaneous Publication 80B.*

Grant-Taylor, T.L. 1978. Deposits of cold climates in the North Island pp. 592-598 in Suggate, R.P. (chief ed.) *The Geology of New Zealand.* Government Printer, Wellington.

Neall, V.E. 1999. Stony River at Blue Rata Reserve, Taranaki. A report to Taranaki Regional Council.