

# Tiromoana Bush Photopoints

## Summary of land cover changes visible in December 2008 photos

The Tiromoana Bush permanent photo points were established on December 14<sup>th</sup> 2004 and reports produced on the changes through to January 2006 and January 2008. Changes over the first year were limited, being restricted mainly to the development of the grass sward resulting from removal of domestic livestock, and the establishment of infrastructure associated with the landfill, including the formation of Kate Pond. More pronounced changes were apparent through to January 2008 including the ongoing development of the rank grass sward, localised expansion of gorse and broom, removal of some wilding conifers and the initial restoration plantings.

The photo points were re-photographed at the end of 2008 (22<sup>nd</sup> December) and the following notes summarise the main changes apparent. Paired photos for those photo points referred to in the text are appended.

- The most obvious change apparent in the December 2008 photos are the slips associated with the heavy rainfall events during the 2008 winter (PP7g, PP9c, PP9f). Interestingly slips are evident both in areas under grassland and in areas under forest. In many places slips have been reactivated on slopes that appear to have had a previous history of instability (PP7g – left, PP9f) but in other instances slips have affected what appear to be forested slopes (PP7g – right, PP9c).
- The other major effect of these severe rainfall events was the formation of a delta running out into Kate Pond (PP12c).
- Ongoing changes in the extent of gorse and broom are apparent from the latest photos (PP10d) and this will continue, most likely in an exponential manner, in future years.
- The very low level of Ella Pond seen in the January 2008 photo (PP6c), the driest the pond has been since the start of the Tiromoana Bush restoration project, was reversed during 2008 when, notwithstanding dry conditions in early summer, the pond was full when rephotographed in December 2008.
- The other major change evident in the current photos is associated with restoration plantings. While the only plantings that are evident in the landscape photo images are sedge plantings around the edge of Kate Pond, fencing and weed control associated with forest restoration plantings are now clearly evident (PP12B). Also apparent in this photo are the cut swathes through the gorse stand that will be planted during 2009.
- The final change observed is the formation of a 4x4 track from the main farm access road down to the beach besides and across lower Kate Stream (PP9I). This track was established without approval and has had an adverse impact on the local environment through three crossings of the stream and general ground disturbance.

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**Location of Tiromoana Bush permanent photo point locations.**



PP7g (top – January 2008, bottom – December 2008) – slips on both previously disturbed sites (left arrow) and under kanuka forest (right arrows).



PP9c (top – January 2008, bottom – December 2008) – slips under coastal mixed broadleaved forest removing much of the forest cover.



PP9f (top – January 2008, bottom – December 2008) – an historically unstable slope that has been further and severely affected by slipping in lower Kate Valley.



PP12c (top – January 2008, bottom – December 2008) – formation of a delta out into Kate Pond as a result of winter rainfall events.



PP10d (top – December 2004, bottom – December 2008) – gorse expansion (arrowed) in grassland.



PP6c (top – January 2008, bottom – December 2008) – Ella Pond at a very low level over the 2007/08 summer compared to its full level over the 2008/09 summer.



PP12b (top – January 2008, bottom – December 2008) – sprayed area with restoration plantings and cut gorse ready for planting adjacent to Kate Pond.



PP91 (top – January 2008, bottom – December 2008) – 4x4 track formed in lower Kate Stream through to beach.