

# The short-, medium- and long-term effects of an aerial 1080 regime on NZ's birds.

- Should we be concerned?
- Have DOC/AHB given us a valid and complete risk assessment?
- Have ERMA taken into consideration all the information for their preliminary evaluation and review?

***(Application for the Reassessment of  
1080 under the HSNO Act 1996, p.33)***

- Area under sustained management (AUSM) using aerial 1080;
- DOC: 760,000 ha
- Regional Councils: 242,000 ha
- AHB 1,780,000 ha
- TOTAL: 2,782,000 ha
- CONCLUSION: The vast majority of “high value” conservation land that is under AUSM, is treated with aerial 1080 at 4-7 yearly intervals.

***(Application for the Reassessment of  
1080 under the HSNO Act 1996, p.399)***  
**Risk-identification E-B5, under “Effects on  
the Environment”**

- **“Reduced predation on native  
birds, especially threatened  
species.”**
- Species named: kokako, kaka, kiwi,  
kukupa, tui, rearea, fantail, whitehead,  
robin, tomtit.

- How likely? Very likely (a good chance that it may occur under normal operating conditions)
- Magnitude of effect: Major (long term benefit to localised species and/or ecosystems)
- Level of benefit E (great benefit at a regional and local level, moderate benefits at a national level)
- Assessment: “Following pest control with 1080, populations of birds in controlled areas are expected to increase due to reduced predation and improved breeding success...”
- Errata on page 283.

Remember: *reducing predation on birds is the key to enhancing their populations.*

- This means primarily: keep rat and stoat numbers at a low level, especially during the breeding season.
- DOC/AHB maintain that under their aerial 1080 regime this reduction in predation is *very likely* to occur and that it has a *major and long term* effect.

# Where can we find evidence for this?

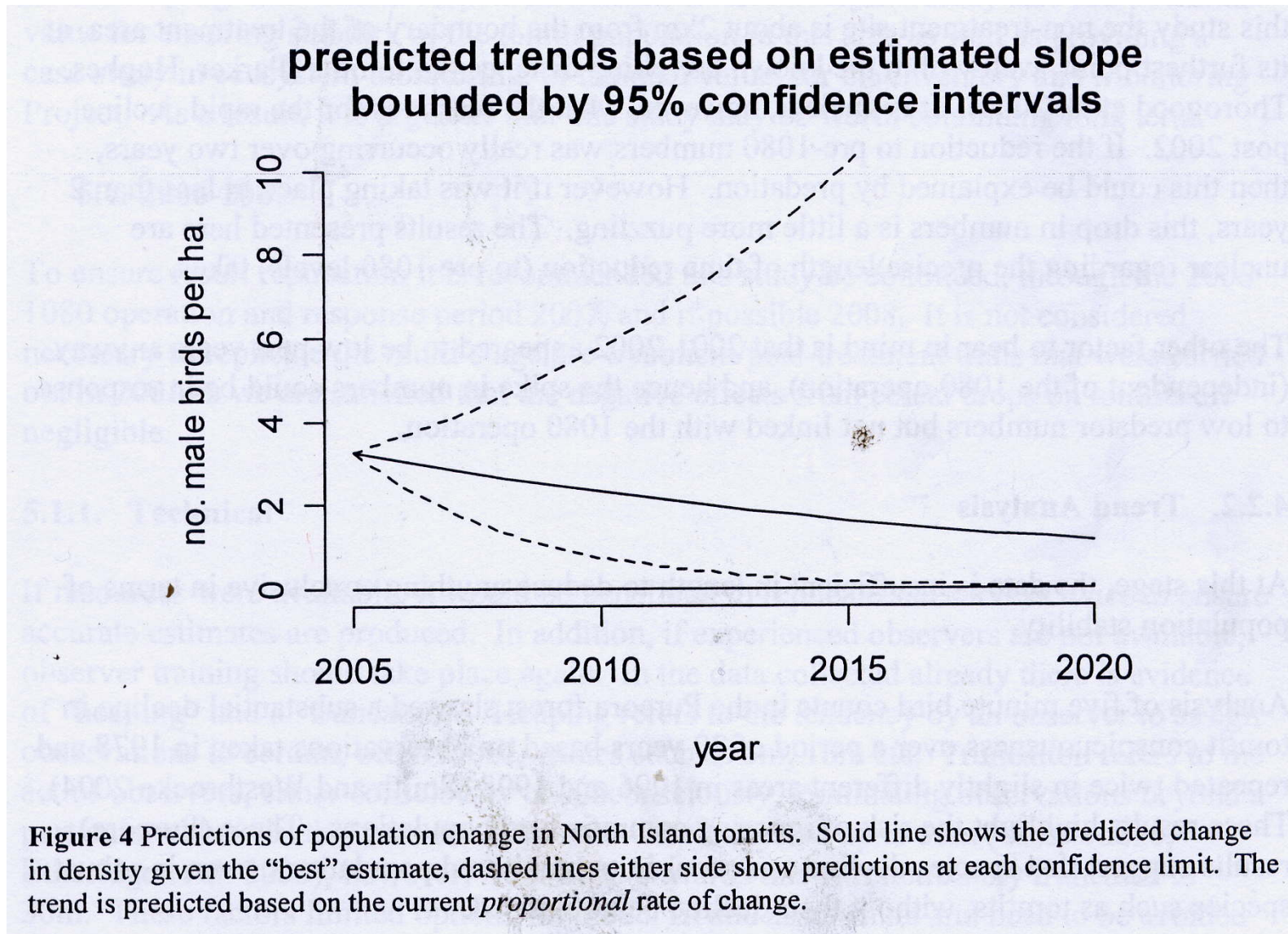
- Short-term positive effects: have been documented in a number of studies for a number of species.
- Medium- to long-term positive effects; virtually no research has been done here. Available case studies indicate negative effects rather than enhancement.

# Tongariro Forest

## “The Forest of the Future”

- Testing ground for large scale 1080 treatments, especially for the effects on the local kiwi population.
- Aerial 1080 in 1995-96, 2001 and 2006.
- Intensive monitoring since 2001.

TOMTIT POPULATION TRENDS IN TONGARIRO FOREST  
BASED ON THE 2001-2005 PROPORTIONAL RATE OF CHANGE ((Meurck,  
C. , et.al., 2006)



# Fantail nesting success in Tongariro Forest.

- “...Rat abundance is higher in the sanctuary than in the non-treatment area, and is probably having a big influence on nesting success of other bird species (e.g. fantails and other passerines) (Tongariro Forest Kiwi Sanctuary Annual Report, July 2005- June 2006, p.20)
- Between 2001 and 2005 rat abundance in the treatment area averaged about double the figures of the non-treatment area.

# Fantail nesting success in Tongariro Forest.

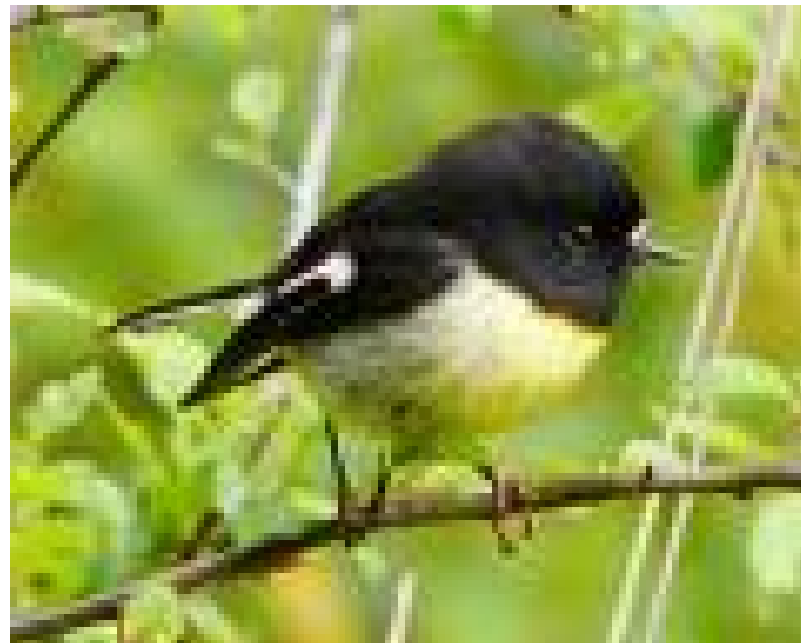
- 2002/03: - 32 nests monitored  
- 45% nesting success
- 2003/04: - 62 nests monitored  
- 11.76% nesting success
- 2004/05: - 47 nests monitored  
- 12.2% nesting success
- 2005/06: - 32 nests monitored  
- 16% nesting success

Source: Annual Report 2005-2006, p. 23.

# WAIHAHA ECOLOGICAL AREA, PUREORA FOREST PARK, WAIKATO.

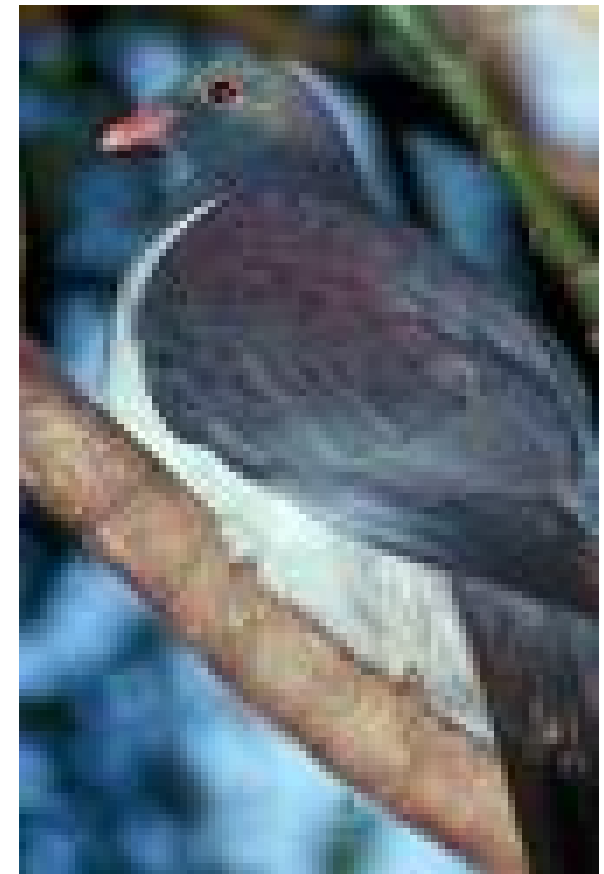
- “...After the Waipapa E.A. this is the second most important kaka population within the Pureora Forest Park...” (p. 36 )
- “However, like Waimanoa, the only pest control in the area involves aerial 1080 control operations at 5- to 6-year intervals...” (p. 36 )
- “Although the kaka population persists in the area, we know that there is a significant sex bias towards male birds—a sure sign of a population in decline. (Greene & Fraser 1998)...” (p. 36 )
- Source: “Research summary and options for conservation of kaka (*Nestor meridionalis*)  
DOC SCIENCE INTERNAL SERIES 78  
T.C. Greene, R.G. Powlesland, P.J. Dilks and L. Moran.

“...There is no evidence of significant adverse effects on populations of any non-target species, as a direct result of exposure to 1080, with the exception of some historical cases where unscreened carrot was used at very high sowing rates...” (***ERMA, Appendices to the Evaluation and Review Report, p.479, 2007***)



- ***Comparison of impact between carrot and cereal 1080 baits on tomtits (Petroica macrocephala)***  
***Ian M. Westbrooke and Ralph G. Powlesland, NZ Journal of Ecology, 2005, 29, 1, p.145.***
- Tomtits were monitored in 3 carrot bait operations in 2003 .
- All these carrot operations had a low sowing rate of 3-5 kg/ha, and small bait particles were screened out.
- Kokomoka Forest: 47% of male tomtits disappeared.
- Mohaka Forest: 20% of male tomtits disappeared.
- Waimanoa: 15% of male tomtits disappeared.
- Density of male tomtits per ha was estimated to be 1.88; when extrapolated this could mean that about 90 (male) birds were possibly killed per square kilometre.

“...There are clearly benefits to many native fauna from the use of 1080 over large areas of forest in reducing predation pressure, and in reducing competition for food, particularly at times of high vulnerability (e.g. nesting, raising young)...” (Appendices to the Evaluation and Review Report, p.479)



- “...The indirect effects of the reduction in pest numbers (possum, rodents and mustelids) on predation and the various interactions between the populations of these species may present a direct short-term risk to some threatened species...This is an area of active research...”  
(Appendices to the Evaluation and Review Report, ERMA, 2007, p. 480)



***“Sweetapple, P., et al., 2006, “Effect of reduced possum density on rodent and stoat abundance in podocarp-hardwood forests.”, DOC Research and Development Series 231.***

- “Rat abundance at Waihaha, Central North Island, was five-fold higher for up to six years after possum control than during the four years prior to possum control (Sweetapple et al., unpubl. data)...” (p. )
- (...our data suggests a 2.5- and 6-fold difference in rat density between blocks at Whirinaki in April 2003 and at Mokau in November 2004 respectively. (p. )
- The consequences of any increase in rat abundance resulting from possum control could potentially undermine the reported benefits arising from that control...(p. )

## “Multiple Pest Dynamics Project.”

- Stoat removal to low levels.
- Possum and rat removal to low levels in a one-off control operation.
- Possum and rat removal in a one-off control operation plus continued rat control.
- No-treatment site – no pest removals.

# CONCLUSION

- A closer look at the benefit identified by Applicants tells us:
- Assumptions are not robust enough to warrant the E rating given.
- The Application, regrettably, fails to cite existing relevant research on predator population dynamics.
- Research data on medium- to long-term effects of aerial 1080 on bird populations are virtually non-existent.

# We ask ERMA to:

- Rectify this state of affairs in their Evaluation and Review Report.
- The effects of 1080 on our forest birds constitutes a major element to the acceptability of the use of this toxin to the NZ public; in other words it is a major selling point. It is crucial therefore that Applicants should tell the whole story and stick to arguments that are backed up by robust data.

# FINAL RECOMMENDATIONS:

- The Applicants' risk assessment should be re-worded:
- *“Following pest control with 1080, some populations of birds in controlled areas may increase in the short-term due to reduced predation and improved breeding success; however only a limited number of bird species have been monitored robustly, and a number of cases have been documented where species were negatively affected at a population level, shortly after poison operations.”*

- *“In the medium- to long-term a sometimes dramatic increase in predator numbers (especially rats) has been reported for podocarp-hardwood forests. The consequences of any increase in rat abundance resulting from possum control could potentially undermine the reported benefits arising from that control.”*

**East Coast/Hawke's Bay  
Conservancy Annual Report  
2004-2005 - Northern Te Urewera  
Ecosystem Restoration Project  
(NTUERP)**

The NTUERP has developed a cost effective, efficient management regime over the past five years to ensure long-term sustainability of 50,000 hectares of the northern part of Te Urewera National Park.

The following outcomes are an indication of the effective pest control regime;

- possum numbers below 95% their original densities and maintained at 1-6% in Core Areas .
- mustelids controlled over 5,500 hectares.
- rats controlled to low levels within Core Areas.

# Highlights of threatened species recovery include;

- kokako pairs increased 12 fold (8 –96 pairs) with nesting success approximately 50% at Otamatuna Study Area.
- 44% kiwi juvenile chick survivorship within Otamatuna Study Area.
- whio/blue duck pairs have increased 2.5 fold (6 –21 pairs) with 155% increase of juveniles in some seasons within 18 kilometres of Te Waiiti.
- other forest bird species have increased by 60% within Otamatuna Study Area.