

## Aide-Memoire

Date: 17 November 2016 DOCCM: 2912719 MSU reference **16-B-0762**  
To: Minister of Conservation  
From: Susan Timmins, Director Threats (Acting)  
Subject: **Information on the successes of Battle for our Birds [BfoB]**

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This document provides information about the success of previous Battle for our Birds responses to widespread mast events.

### 1. How accurate have the predictions of mast events and subsequent rodent plagues been?

Four sources of information contribute to our ability to predict the severity of rodent and mustelid irruptions that are likely to occur in beech forests in the spring and summer.

- Climate predictions: these give us very early warning of the likelihood of predator irruptions for the whole of New Zealand. In recent years, the internationally reviewed and published 'delta T' ( $\Delta T$ ) model has been used as a useful predictor of beech flowering and seed fall<sup>1</sup>. The model is used by the Department of Conservation to predict beech mast events. In short, if the last summer was warmer than the preceding summer, the likelihood of mast in the coming autumn is high.
- Observations of flowering in October and November: provided by trained observers
- Seed fall monitoring in January to April: collected from a wide range of sites
- Rodent monitoring in February to June: using tracking tunnels.

Analysis of these data have been used to accurately predict the widespread mast (heavy seeding) events and subsequent plagues in 2014 and 2016.

### 2. What impacts have BfoB had on bird and bat breeding?

There is an increasing body of evidence that shows that native fauna substantially benefits from the use of 1080, particularly when predators reach plague proportions:

- Monitoring of **long-tailed bats** in the Fiordland in 2015 shows the population remained healthy with a record number of 1,700 bats counted from one roost. Previous monitoring has shown the loss of 30-40 percent of long-tailed bat populations from roost trees in a mast year without pest control.
- DOC tracked **kea** through pest control operations in South Westland and at Arthur's Pass, Kahurangi and Lake Rotoiti in 2014. Nesting for the 2015 breeding

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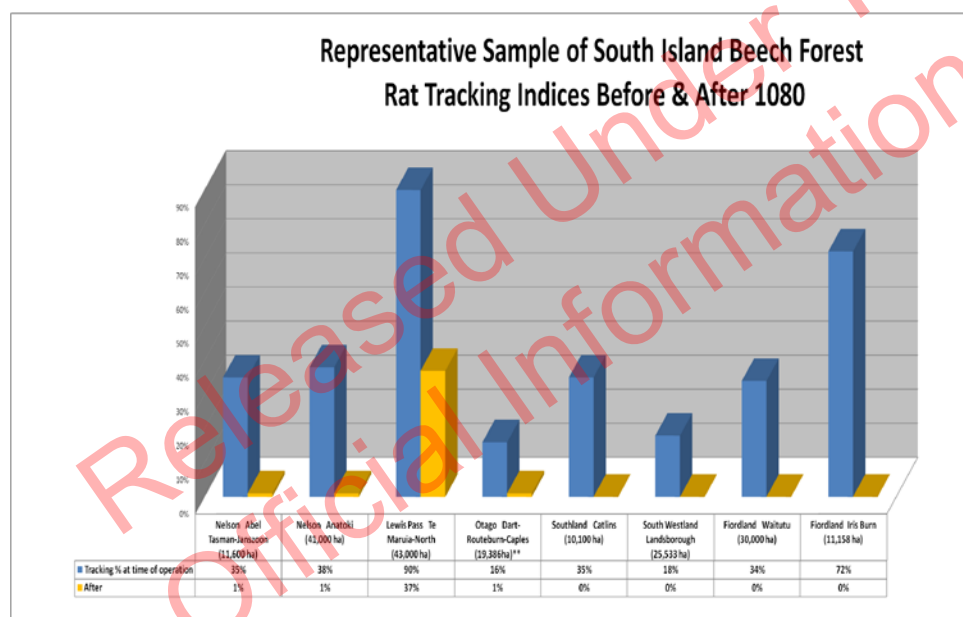
<sup>1</sup> Kelly, D ; Geldenhuis A ; James, A ; Holland, P ; Plank, M J ; Brockie, R E ; Cowan, P E ; Harper, G A ; Lee, W G ; Maitland, M J ; Mark, A F ; Mills, J A ; Wilson, P R ; Byrom, A E 2012 Of mast and mean: differential-temperature cue makes mast seeding insensitive to climate change Ecology Letters (2012)

season was positive. In the 1080 treatment areas in Kahurangi National Park 27% of nests were successful. Compared with areas without pest control in 2009-2014, only 2% of kea nests over that period were successful.

- **Robin** nesting success in 2015 was nine times higher after 1080 treatment than in the non-treatment area, resulting in seven times more chicks. 84% of robins survived compared to 37% in the non-treatment area. Without 1080 treatment, high stoat levels wipe out most nests and kill adult birds.
- **Mohua** have been monitored extensively, and in 2006 and 2009, nesting success was on average twice as high after 1080 treatment than without it. After a 1080 operation in 2014, in the summer of 2015 89% of mohua nests produced chicks in the Dart and Routeburn valleys, and 97% of adults survived.

### 3. What has been achieved in terms of animal pest reduction?

Results from the 2014 operations show rat populations crashed dramatically giving much-needed protection to vulnerable native birds and bats as they bred over the summer. Most operations achieved a high knock-down of rats to low or undetectable levels as well as significant kill rates of mice. Stoats then fed on the numerous poisoned dead rodents to significantly lower those predator populations also.



### 4. Other information that will support budget bid discussions

In 2014 DOC monitored the rat and stoat kills immediately after operations and monitored the responses of a range of mostly forest birds in the two years following the operations.

Rat and stoat kills at most sites were close to 100% - at a few sites rat kill rates were only 75%, but killing 75% of the rats can hardly be regarded as a failure – rather it is something that we can improve on.

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