



OIA 18-E-0492 DocCM 5553650

28 August 2018

[REDACTED]  
[REDACTED]

Dear [REDACTED]

Thank you for your Official Information Act request to the Department of Conservation, dated 2 August 2018. You asked the department to provide you with following:

- 1) copies of all research undertaken by or commissioned by DoC and/or MPI (or their predecessors) to follow up this recommendation by the government's then expert Dr Meads
- 2) copies of analysis of the impacts of poisoning of insects and invertebrates by 1080 on the food chain, native birds, wild foods, food products such as honey, and on NZ's clean green reputation and reputation for food integrity, and accordingly impacts on food experts (sic), tourism and the wider economy.

The report you refer to was Meads, M. *Effect of sodium monofluoroacetate (1080) in non-target invertebrates of Whitecliffs Conservation Area, Taranaki*. Landcare Research Contract report LC9394/126, -25. 1994.

The context you provide with your request is that you have been unable to find Dr Meads' report and wish to know what research has been undertaken or commissioned to follow up on the recommendations from his investigation. You quote from the report that:

*"Investigations on the effects of this poison on nontarget species has mostly been confined to its direct impact on birds, with little or no research on the effects on lizards, bats, or invertebrates. Few studies have dealt with the direct impact of 1080 on native insects and other invertebrates, and there is no research on the effect of 1080 on populations or communities of invertebrate species...."*

The department's records show that Meads' investigation was declined for publication because it did not pass the peer review process, due to flaws in the methodology and the quality and interpretation of data. The draft was initially critiqued by two reviewers at Landcare Research and subsequently rewritten by Meads. Following further submissions to Department of Conservation and independent reviewers, it was found to still have serious flaws. Meads' methodology and data collection process, and the critique of them, is in the public domain. (See Hansford, D. (2016) *Protecting Paradise: 1080 and the Fight to Save New Zealand's Wildlife*, and Brockie, B. 11 April 2015. *A Flawed Trial*. The Press.

<https://www.pressreader.com/new-zealand/the-press/20150414/281779922650632>

Although in 1994 Meads claimed there was no research on the impact of 1080 on invertebrates, there is now abundant scientific literature on the topic.

Your questions and our responses are listed below:

- 1) *copies of all research undertaken by or commissioned by DoC and/or MPI (or their predecessors) to follow up this recommendation by the government's then expert Dr Meads.*

I regret that I am not able to provide you with the information you seek under section 18(g) of the Official Information Act. This is because the report did not pass the peer review process, therefore any recommendations were not followed up, and the research is not cited in subsequent literature.

Neither do I have grounds to believe that the information is either—

- (i) held by another department or Minister of the Crown or organisation, or by a local authority; or
- (ii) connected more closely with the functions of another department or Minister of the Crown or organisation or of a local authority.

- 2) *copies of analysis of the impacts of poisoning of insects and invertebrates by 1080 on the food chain, native birds, wild foods, food products such as honey, and on NZ's clean green reputation and reputation for food integrity, and accordingly impacts on food exports, tourism and the wider economy.*

I regret I am not able to provide you with all the information you seek, under section 18(f) of the Official Information Act. The information requested cannot be made available without substantial collation or research. For example, the department holds 175 peer reviewed reports, specific to invertebrates and 1080, published between 1987 and 2012 alone. To review each of these, plus all the rest of the 1080 analyses, to find those relating to a particular insect, invertebrate, native bird, wild food, or food product would take at least 2 weeks of fulltime research.

Although Meads' research did not pass peer review, as indicated above there have been many other studies on the topic. The scientific consensus from these is that there is no significant evidence to suggest poisoned invertebrates are a factor in secondary poisoning of other animals, or the food chain.

Below are some findings from peer-reviewed published articles. You may wish to consult the following review for references to these studies: Eason, C., Miller, A., Ogilvie, S., & Fairweather, A. (2011). An updated review of the toxicology and ecotoxicology of sodium fluoroacetate (1080) in relation to its use as a pest control tool in New Zealand. *New Zealand Journal of Ecology*, 35(1), 1-20.

- Invertebrate populations have been monitored in nine aerial poisoning operations and none have shown significant population effects on any species studied. Long term monitoring of native land snails indicates substantial benefits to threatened populations in sites treated with aerial poisoning.
- Invertebrate populations have been monitored in two 1080 aerial poisoning operations using carrot baits. None of these studies suggest significant population effects on any species studied nor is there evidence to suggest poisoned invertebrates are a significant factor in secondary poisoning of other animals.
- No impacts on the numbers of ground-dwelling invertebrates caught in pitfall traps up to 1 year following aerial application of carrot bait at 15 kg ha<sup>-1</sup> at Waihaha Forest in 1994 (Spurr 2000).
- Powlesland et al. (2005) monitored invertebrate numbers every second or third month for a year before a 5 kg ha<sup>-1</sup> 1080 carrot operation, and for two years afterwards. Numbers of tree weta, cave weta, cockroaches, spiders and harvestmen, and leaf-veined slugs did not decline substantially in refuges in the treatment area relative to those in the non-treatment area immediately after the poison operation. From the results, the authors concluded that aerial 1080 carrot operations are unlikely to have a detrimental effect on invertebrates that occupy cavities above ground.
- An extensive study of forest invertebrates found on 1080 baits by Sherley et al. (1999) found that at any time only a small proportion of baits had invertebrates on them, and the few individuals per bait represented a small section of the fauna present in the litter. The number of invertebrates recorded on baits in treatment grids declined when 0.15% 1080 Pellets were laid at 18 kg ha<sup>-1</sup>, but started to return to original levels (relative to control grids) within 6 days of removal of the toxic baits. The reduction in invertebrate numbers did not extend further than 20 cm around each bait.
- A study by Spurr & Berben (Spurr and Berben 2004) hand laid 0.15% 1080 Pellets at 5 kg ha<sup>-1</sup> to simulate aerial poisoning in Tararua Forest Park in 1999 and monitored the occupancy of artificial refuges by tree weta and cave weta (*Isoplectron* sp.). No significant impact of bait application was found for these species nor was there any effect observed on numbers of slugs, spiders and cockroaches which also commonly used the same refuges.
- No impact was detected on populations of weta in Waipoua Forest and all cockroaches, centipedes, millipedes, kauri snails and all but one beetle survived in enclosures with 0.08% 1080 Pellets (Pierce and Montgomery 1992).
- Spurr (1994a) found no impacts on populations of amphipods, ants, beetles, collembolans, millipedes, mites, slugs, snails, spiders and cave weta at Puketi Forest or Titirangi Scenic Reserve where 0.08% 1080 Pellets were aerially applied at 5 kg ha<sup>-1</sup>.
- In Mapara where 0.08% 1080 Pellets were aerially applied in three consecutive years 1990-92, a comparison of invertebrate fauna showed a greater number of predatory insects in the treatment site, characteristic of a healthy forest, and more fungal eating insects in the non-treatment site, characteristic of unhealthy forest (Bradfield 1993).

- A range of invertebrate species on Rangitoto Island were sampled using a range of collection techniques, before and after aerial poisoning with 0.08% 1080 Pellets at 12 kg ha<sup>-1</sup>. No population effects were observed.
- In the early 1990's, the Taranaki Regional Council monitored aquatic invertebrates in streams before and after two aerial 1080 operations. No effect of the aerial 1080 operations on the invertebrate communities could be demonstrated. However, the post control samples were collected between 32 and 42 days after the aerial operation, and the sampling protocol could have resulted in any short-term reductions in invertebrate numbers being missed (Suren and Lambert 2006).
- Suren and Lambert (2006) conducted an experiment to assess the ecological impact of 1080 leaching from baits on aquatic invertebrate communities. The experiment was conducted in four streams in the Mawhera Forest in the Grey Valley, West Coast. In each stream four sites were selected – 10 m and 100 m downstream, and 10 m and 100 m upstream from where 1080 baits were to be placed in the stream. At each site invertebrate communities on 10 replicate rocks were quantified 4 days and 1 day prior to baits being placed in the stream. The invertebrate communities were dominated by Caddisflies (*Helicopsyche*, *Pycnocentroides*, and *Pycnocentria*), orthoclad midges, and the mayfly *Deleatidium*. Baits (6.5 g 0.15% 1080 Wanganui #7 pellets) were then placed in the streams at a density equivalent to a sowing rate of 25 – 30 kg ha<sup>-1</sup> (this represented an extreme scenario of 10 x normal sowing rates). The invertebrate communities were re-sampled 1 day and 4 days after the bait was placed in the stream. No biologically significant effects on the invertebrate communities as a result of the 1080 were observed.

You are entitled to seek an investigation and review of my decision by writing to an Ombudsman as provided by section 28(3) of the Official Information Act.

Please note that this letter (with your personal details removed) and enclosed documents will be published on the Department's website.

Yours sincerely

A black rectangular redaction box covering the signature of the sender.

Amber Bill  
Director Threats, Biodiversity  
for Director-General