

Application for DOC permission to use VTAs: assessment report

Applicant name:	s 9(2)(a) Operations Manager Greymouth
Operation name:	Te Maruia
Approving manager:	DDG Operations
Assessor:	s 9(2)(a) Reviewed August 2019 by Tiakina Nga Manu support staff. Updated Technical Advisory Group (TAG) advice re current unprecedented mast conditions has been included in the application and assessment thereof. The assessment has been amended accordingly.
Date received:	Initial application received 8 July 2019, amended application dated August 2019.
Overview:	<p>To control rats with a by-kill of stoats in Te Maruia following a rat irruption triggered by a beech mast event, it is proposed that the following pesticide uses will be applied:</p> <ul style="list-style-type: none"> • Pesticide Use #1 Sodium fluroacetate [1080] 15% w/w Cereal Pellet RS5 6gm aerial application <u>and/or</u> Pesticide Use #140 Pestex aerial application over 69,910ha • Pesticide Use #2 Sodium fluroacetate [1080] 15% w/w Cereal Pellet RS5 6gm hand laid <u>and/or</u> Pesticide Use #141 Pestex hand laid over 420ha <p>Permission is sought for toxic application starting on or after 1 September 2019 and ending on or before 13 December 2019. Prefeed will be applied no earlier than 1 September 2019.</p>
Applicant type:	DOC applicant—DOC SOPs will apply.

Step 1 Confirm application is complete *Are all documents (listed below) provided?*

DOC Application form complete:
Are all sections of the DOC Application Form completed to a standard that you can assess them? Where are the information gaps? Is the operational information for treatment blocks clearly separated in each section of the application form where differences exist between them? Does the proposed application meet the grouping standard (see [Applying for DOC permission for external agencies](#) or [Operational planning for animal pest operations SOP](#) ?

The Application form was completed to an acceptable standard for assessment with no significant information gaps. (see DOC-5952049)

With a single operational site, the grouping criteria do not apply to this permission.

An AEE is required for this operation and has been completed. This assesses the actual and potential environmental effects of controlling rats, possums and stoats in the operational area. The conservation benefits for kaka, mohua, mistletoe and other native species, are considered to outweigh any potential risk.

<p>Where required, was the AEE section completed?</p>	<p>N.B. Permission was initially granted 12 July 2019 for this operation (see DOC-5957031) however due to inaccuracies within this permission document and updated DOC TAG advice re sowing rates, it is recommended that it be revoked and a new permission issued based on the revised application.</p> <p>Amendments were made to the initial application in respect of:</p> <ul style="list-style-type: none"> the addition of Pesticide Uses #1 and #141 1.5g/kg 1080 baits to provide flexibility in terms of bait supply a change to sowing rate of the 1080 baits from 1.5kg/ha to 2kg/ha as per Technical Advisory Group (TAG) recommendations <p>It is also noted that the original application recorded several land owner approvals as “pending”. All landowner approvals have since been obtained.</p>
<p>Are all the proposed pesticide use(s) accepted for use? <i>Check the Status List category and if any compulsory restrictions apply. If any compulsory information needs apply, consider if the operation is designed to provide the required information.</i></p>	<p>Pesticide use #1, #2, #140 and #141 are accepted for use. There are no compulsory restrictions or compulsory information that apply. There are, however, compulsory performance standards and these will need to be adhered to.</p>
<p>Performance standards sheets <i>Is there a performance standard sheet for each pesticide uses proposed, and trapping if applicable?</i></p>	<p>Performance standard sheet for pesticides #1, #2, #140 and #141 are attached.</p>
<p>DOC permission map(s) (image file or files) <i>Does the map or maps meet the minimum standards (as stated in Appendix 2 of the DOC Application Form), including showing proposed warning sign locations and normal points of entry where warning signs must be A3?</i></p>	<p>Yes. Maps meet the required standards.</p>
<p>DOC Pesticide Summary shapefiles (independent groups or individuals only) <i>Are the control methods clearly assigned to each treatment block? Do operational boundaries and warning sign locations match the DOC permission map(s)?</i></p>	<p>NA</p>
<p>Consultation record including conditions of landowner consents <i>Was level of consultation adequate?</i></p>	<p>The AEE and consultation record shows that all compulsory groups were consulted on the effects of the proposed operation.</p>

<p><i>All required owner/occupier consents obtained? Are conditions of consent evident in their application?</i></p>	<p>As of 11 July 2019, the required land owner/occupier consents were obtained with the exception of the Buller District Council (BDC). All conditions agreed and recorded in the consultation record.</p> <p>BDC consent received August 2019</p> <p>Iwi (Te Rununga o Ngati Waewae) have been consulted and have raised no issues and are supportive (see comms plan DOC-5666533)</p>
<p>Public health permission/ proof of application <i>Proof of application for public health permission is adequate to process the application, as long as the public health permission and associated application form is sighted prior to approval.</i></p>	<p>Initial MOH approval given on the 10 July 2019. Subsequently revoked and a new PHU permission issued (16/8/2019) allowing a higher sowing rate as per updated TAG advice. 6045063</p>
<p>Other (specify, e.g. RMA consent)</p>	<p>N/A</p>
<p>Your confirmation email and subsequent correspondence <i>Include dates and nature of requests for further information.</i></p>	<p>Application received on the 29th of May 2019 and confirmation reply email sent.</p> <p>Updated bait pesticide use sheet was sent on the 6th June 2019. This swapped pesticide #1 to #140.</p> <p>The AEE needed updating with the latest kea information and this was provided on the 10 June 2019. Pesticide Use sheets were updated on 8 August 2019, and include PU #1, #2, #140 and #141.</p>
<p>Step 2 Capture treatment blocks in the Pesticide Application</p>	
<p>Your publication of the proposed operation on the DOC Pesticide Summary (independent groups or individuals only) <i>Include date and note any issues.</i></p>	<p>NA – DOC operation (already captured)</p>
<p>Step 3 Evaluate control method <i>Is the proposed method suited to the pest problem, treatment area and consultation outcomes?</i></p>	
<p>Your assessment of the control method <i>Include relevant points from the 'Choose your control method' part of Current Agreed Best Practice, where available.</i></p>	<p>Aerial distribution of 1080 is the only viable method for achieving a rapid knockdown of rats, possums and stoats over a large-scale area, over difficult terrain and in a short timeframe. The control method is in line with DOC national practices for rat and possum control over large scale areas. Rodent tracking results in February 2019 indicated that it is very likely that Maruia rat population is high (about 30% and projected to rise to</p>

60-70% by July/August) and will achieve the by kill of stoats desired (Kemp 2018).

August tracking update:

TAG are confident the increase in rat numbers has occurred as predicted based on tracking information from other similar sites around the country.

The history of controls confirms this is an effective control strategy for this area. Aerial 1080 distribution allows for a quick knock down of rats and possums over large areas. Outcome monitoring in this area has shown control techniques to be effective in reducing pest numbers for conservation gains.

This year's unprecedented 'mega mast' has however provided abundant food for rats, making predator control more challenging. The monitoring results for the three recently completed aerial 1080 operations show nearly 20% rat survival, significantly more than hoped at less than 5%. The exceptional amount of seed from the South Island's biggest beech mast in 40 years means rats don't need to travel far for food and their home ranges. Gaps in bait coverage have left pockets of rodents that wouldn't travel far enough to be exposed to the bait.

It is vital that this operation is successful in order to avoid losing local populations of vulnerable native species such as mohua, whio, and long and short tailed bats, which are vulnerable to rat plagues.

The Department's technical advisory team has revised the bait application rate for several operations to ensure more even bait spread. This is at an increased rate of 2 kg per hectare, up from the usual 1.5 kg. This adjustment aims for complete bait coverage to reach all rodents, and will be applied by sowing baits in overlapping swathes, so that the entire area is sown with baits twice and there is no possibility of gaps. By sowing twice and achieving the same kill rate for each individual swath, the operation is expected to achieve at least a 94% mortality for rats.

The proposed sowing rate at 2kg/ha exceeds the guidance in the current Method Best Practice for BFOB aerial 1080 baiting which has specified 1.5kg/ha as current guidance. A sowing rate of 2kg/ha has however been used in many past operations. The operation will continue to meet other best practice guidance and will comply with the Code of Conduct for aerial 1080 operations in Kea habitat.

<p>Label directions <i>Check the product label to ensure that the proposed method detail complies with the label content.</i></p>	<p>The proposed control method complies with applicable directions for use (aircraft, weather conditions) and other content on the product labels for V002848 (Orillion RS5 1.5g/kg 1080 baits), and V9602 (Pestex 1.5g/kg 1080 baits).</p>
<p>Summary of any technical advice received on the proposed control methods.</p>	<p>DOC TAG advice re higher sowing rates (see above).</p>
<p>Summary of any Community relations and Pou Tairangahau advice received.</p>	<p>None</p>
<p>Step 4 Identify and assess risks and adverse effects <i>Are you satisfied that all risks and adverse effects have been identified?</i></p>	
<p>Are there any gaps in the applicant's assessment of these (where the AEE section was supplied)?</p>	<p>Risks and adverse effects related to 1080 use are well covered in the AEE section of the application.</p> <p>TAG advice: The change from a 1.5kg/ha to 2kg/ha sowing rate for the 1080 toxic baits is considered unlikely to result in any significant increased risk to non-target species.</p> <p>Any additional risk is also considered acceptable in light of the potential benefit of increasing the sowing rate, and the risk of an unsuccessful operation should the usual 1.5kg/ha sowing rate be used instead.</p>
<p>Relevant points from the DOC Pesticide Information Reviews</p>	<p>1080 Pesticide Information Review – Additional information on non target native species of relevance is as follows:</p> <p>Morepork: A total of 23 morepork have been radio tracked through aerial 1080 operations. None have been found dead by 1080 poisoning (1080 Pesticide Information Review Section 3.2).</p> <p>SI Tomtits: A total of 29 NI tomtits have been monitored during two non-prefed aerial 1080 operations, with 1 bird disappearing. In Pureroa the authors concluded that there was little, if any, short term impact on tomtit. (1080 PIR Section 3.2).</p> <p>Whio: 77 whio have been monitored through 3 aerial operations. All birds have survived (1080 PIR Section 3.2).</p> <p>Kaka: 60 kaka have been monitored through 4 aerial operations. All birds have survived (1080 PIR Section 3.2).</p>

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Kea: 222 kea have been monitored through 14 aerial operations, 24 have died (Kemp et al in press 2019). Overall the death rate of kea during 1080 operations in remote areas is about 1% whereas it is about 20% in areas where the kea come in regular contact with people. Over the last 20 years 138 kea nesting attempts have been monitored. In normal years kea nesting success is only 30%, with stoats and possums being the cause of most nest failures. In years when stoats are abundant nesting success drops to close to 0%. But after an aerial 1080 drop nesting success rises to 80% because of the lack of stoats and possums. The net effect on kea in remote areas where kea are not habituated to people is overwhelmingly positive. This operation is not considered to be a "scrounging site" so the risk to kea is considered to be low.

Mohua have been found in the Operational area. A study in the Landsborough Valley by Colin O'Donnell found significant increases in mohua numbers through the regular use of 1080.

NZ Falcon: NZ falcon territories have remained occupied during four aerial operations using cereal bait.

Kakariki: 22 parakeet nests have been monitored during two cereal operations. These two operations gave a mortality estimate of 2.27% (0.1-12% 95%CI) (Rhodes et al. 2008). The authors concluded that given the rate of nest predation, there was an overall net benefit to the use of aerial 1080.

Long-tailed bats: Information on short-tailed bats indicates that they are possibly vulnerable to secondary poisoning from feeding on arthropods that have been feeding on 1080 pellets and residues in this prey can in theory be enough to kill a bat. However, in a study in Rangataua forest where 0.15% 1080 Pellets were aerially broadcast (3 – 5 kg ha⁻¹) over "...almost the entire winter range..." of the study animals, a total of 269 short-tailed bats were caught at their roost following poisoning and held for 48 hours to determine any mortality or signs of poisoning. All animals survived and showed no signs of 1080 poisoning (Lloyd & McQueen 2000).

Transect counts of SI tomtits, grey warbler, SI robins and riflemen were conducted before and after the 2010 Waitutu aerial 1080 operation (1 kg ha⁻¹ prefeed followed by 2 kg ha⁻¹ 0.15% 1080 pellets). The transects were located at five sites, three within the operational area and two in a non-treatment area. While the numbers of tomtits and grey warblers detected on the

	<p>transects changed following the application of the 1080, the scale and direction of the changes (decreases for tomtits and increases for grey warbler) was similar at all five sites. The pre- and post-control counts of rifleman and SI robins were similar between the operational area and non-treatment sites. The authors therefore concluded there was no evidence for population level impacts from 1080 on any of these species (Greene et al. 2013).</p> <p>There is no monitoring information available on potential risks to black backed gulls in the Pesticide Information Review.</p>
<p>Summary of any technical or community relations advice received</p>	<p>DOC TAG advice re potential risk to non-targets from higher sowing rates (see above).</p>
<p>Other resources consulted (<i>specify</i>)</p>	<p>Fairweather A. 2018. 1080 Pest Review Information. DOC-DM-25427</p> <p>Kemp J., Mosen Corey C.M., Elliott G., Hunter C.M. and van Klink P. Kea survival during aerial poisoning for rat and possum control. New Zealand Journal Ecology 43(1)</p> <p>O'Donnell C. 2012. Quantifying the benefits of long-term integrated pest control for forest bird populations in a New Zealand temperate rainforest. New Zealand Journal of Ecology 36(2)</p> <p>Rhodes M., Elliott G. and Kemp J. 2008. Parakeet nesting success with and without predator control in the Hurunui Valley, North Canterbury. Internal Department of Conservation report.</p>
<p>Your assessment of technical risks and adverse effects (<i>e.g. the pesticide use, use pattern, site factors</i>)</p>	<p>All significant risks and adverse effects associated with aerial 1080 possum baits have been identified and discussed in the AEE prepared for this area.</p> <p>The relevant and most up to date pesticide use sheets have been included in the AEE and cover the range of control techniques to be applied.</p> <p>Best practice sowing rates (1.5kg/ha for 6 gram and 3kg/ha for 12g toxic) and flight line spacings have been increased to 2kg/ha for this operation due to poor results in recent operations at Cobb, Arawhata and Abel Tasman.</p> <p>Risks to native fauna have been identified, with emphasis on the risk to kea from aerial 1080. These species are considered to have a higher relative vulnerability to 1080 than other native birds found at</p>

	<p>the site. The report notes that all bird species are likely to benefit from the use of aerial, due to reduction of predators.</p> <p>There is a risk to domestic dogs. The risk is that dogs enter the operational area during the period when baits and carcasses are present or encounter poisoned possum carcasses that have been washed outside the operational area in flooded water courses. All landowners/occupiers have been warned of the potential risk to their dogs and there is adequate signage to warn any visitors to the area.</p> <p>Any risks to domestic animals will be minimised by the block boundaries being set 100m from areas where stock are grazed, and further if fencing is considered inadequate by the landowner. The consultation process also means any land owners are well informed and are assisted with the moving of stock if required.</p>
<p>Your assessment of non-technical risks (e.g. high public use, consultation outcomes)</p>	<p>The area has a mix of locally high use public facilities, low and moderate use areas mainly accessed by walking tracks and routes into the area, and large areas of untracked and remote areas. The track to Lake Daniels is popular. However, the Lake Daniels hut has been removed, with a new hut due to be built. The track to the lake and the camp site of those working on the new hut have both been provided buffers for the operation.</p> <p>The popular Maruia Springs Thermal Resort is also excluded from the treatment area, and buffers are provided for tracks, huts, picnic areas and camping areas in accordance with the Public Health permission.</p> <p>The risks to walkers/hikers, hunters, visitors and landowners has been thoroughly considered and managed through consultation agreements and decisions on boundaries and flight corridors, and the inclusion of buffers.</p>
<p>Step 5 Calculate estimated caution period and evaluate if risks and adverse effects are at an acceptable level Will risks be managed adequately with the performance standards proposed for this operation? Include dates and outcomes of any discussion with the applicant.</p>	
<p>Estimated caution period for all the pesticide use(s) Does this differ from the recommended caution period in the Caution period calculator?</p>	<p>The estimated caution period for this operation is nine months after the last date of bait application (as per Caution Period Calculator). As bait and carcass monitoring is compulsory for this operation, signs will not be removed until there has been adequate break down in the bait and carcasses.</p>

How well does the proposed operation manage potential risks to native fauna? <i>(i.e. as proposed in the Application form or performance standards)</i>	The control method specifications (bait size, lure, colour, application rate) and proposed performance standards are adequate to manage risks to native fauna.
How well are other potential risks managed? <i>(i.e. as proposed in the Application form or performance standards)</i>	Risks and adverse effects are managed to an acceptable level, including through the performance standards. Treating the area outside of the roar (late March and April) and the peak of summer will reduce the impact on members of the public potentially using the area.
Are you satisfied with the proposed warning sign locations and normal points of entry?	Yes
Summary of any technical or community relations advice received	Nil
Public health permission, including application form sighted (if not provided at time of application) <i>Consider if public health permission has any impact on DOC permission conditions.</i>	Received 16 August 2019 DOC 6045063 N.B. An earlier PHP was issued then revoked and the new permission issued after DOC sought variation to allow an increased sowing rate of 2kg/ha as per Tiakina Nga Manu TAG recommendation.
Other resources consulted <i>(specify)</i>	Nil
Which additional performance standards should be applied and why? <i>Consider impacts of conditions from other consents. Consider if the additional performance standards specific and auditable, and can be justified.</i>	None
Step 6 Make a recommendation <i>Should the application be approved or declined?</i>	
What key points should the approving manager have drawn to their attention?	Advice received from the Tiakina Nga Manu TAG that a higher sowing rate than the applied for 1.5 kg/ha may be required for this operation to be successful due to the effect of the current mast conditions. This is summarised in the "Step 3" section (pages 3 & 4) above, and the technical advice on potential effects of the revised sowing rate is summarised in the "Step 4" section (page 5) above. The technical advisers have concluded that the revised sowing rates are likely to result in more effect results in terms of rat mortality, and any potential effects of the increase in sowing rates on non-target native species is acceptable. The revised sowing rate of 2kg/ha is within the rate approved in the revised PHU consent for the operation.

<p>Is approval or decline recommended? <i>If declined, summarise reasons. If approved, is a readiness check recommended (DOC operations only – see Pre-Operational Step 7 of the Operational planning for animal pest operations SOP)?</i></p>	Approval recommended.
Step 7 Prepare documents and advise manager	
<p>For recommended approval: <i>Attached correct draft letter of permission, DOC Performance Standards sheet(s) and map(s) of operational boundaries.</i></p>	<p>Letter incl maps: DOC-6040500</p> <p>DOC Performance Standards:</p> <ul style="list-style-type: none"> • PU#1: DOC-6033071 • PU#2: DOC-6015550 • PU#140: DOC-6015544 • PU#141: DOC-6033084
<p>For recommended decline: <i>Attach draft letter of decline including a summary of reasons.</i></p>	

Record of permission decisions that differ from the assessor recommendation	
<p>Record of permission decision <i>Only complete this section where the manager has made a decision that differs from the assessor's recommendation. For example, where the manager decides on different operational timing or warning sign locations or rejects a recommendation to approve or decline the application. Where required, complete this in Section 7 (Approving or declining DOC permissions), Step 2. Record the difference between the decision and recommendation and summarise the reason(s) for the decision.</i></p>	