Department of Conservation
Te Papa Atawhai

MSU reference 13 - B-505

Briefing requested by the Minister of Conservation

Date:	13 December 2013	File ref:		DOCDM	1332115

Minister of Conservation

Subject:	**LANDSCAPE SCALE PEST CONTROL AND RESPONSE TO BEECH MAST**
Action Sought:	Noting
Deadline:	You requested this paper for 13 December 2013.

Paper Type: (Cabinet, Statutory or Other)	Other	**Dept's Priority:** (Very High, High, Normal or Low)	High
Risk Assessment: (e.g. possible negative reactions/consequences)	Opposition to the use of aerial 1080, and ability to obtain consents.	**Level of Risk:** (High, Medium or Low)	Medium

Contacts for telephone discussion (if required)				
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1	Kevin O'Connor	DDG, Conservation Services Group	[redacted]	[redacted]
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Executive Summary

In the current financial year the Department of Conservation is on track to achieve an estimated c.50,000 ha increase from the previous financial year (105,037ha) in the use of aerial 1080 for pest animal control.

The Department is planning for a similar level of increase in the 2014/2015 year.

A beech "mast" event is expected to generate plagues of rats and stoats in the summer of 2014/2015. It will directly threaten a number of iconic and threatened species such as orange fronted parakeets, mohua, long tailed bats, short tailed bats, rock wren, whio, kaka, kea, kiwi, and some species of *Powelliphanta* snails.

A response using aerial 1080 to the expected plague is currently being planned, focussing on the priority habitats for the species at risk, and including a treatment buffer. This response amounts to a planned 656,000 ha that will be treated with aerial 1080.

Should pest monitoring indicate that the "plague" events are not going to occur, then the Department expects to deliver about 200,000 ha of aerial 1080 pest animal control at a variety of sites.

The Department is continuing to work with other agencies and organisations to reduce transaction costs and build consistency associated with RMA consent processes. Work underway includes contributing to proposed amendments to the national legislative framework to reduce duplication between the Resource Management Act 1991 (RMA) and Hazardous Substances and New Organisms Act 1996.

Recommended Action

It is recommended that you–

	Minister's decision
Note the information provided in this briefing and attachments.	(yes / no)

[redacted]

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Kevin O'Connor
Deputy Director-General
Conservation Services
for Director-General

……..…… …… / ….. / ……
Nick Smith
Minister of Conservation

Background

1. Pest animals are a major threat to the survival of New Zealand's native flora and fauna. Pests are trapped, poisoned and shot, in order to achieve desired conservation outcomes. Control is carried out on the ground and through aerial operations.

2. Aerial control through the application of baits by aircraft can be highly effective and cost efficient compared with alternative management options. It is particularly suitable:

    a. for large areas where economies of scale reduce the per hectare cost of fixed expenses,
    b. where the areas are large enough to reduce re-invasion by target pests, or,
    c. where landscape scale pest control is required to benefit species or ecosystems reliant on low pest densities over large areas during some of their lifecycle.

3. Aerial 1080 is often the only effective treatment option for small mammal pests in remote/difficult terrain.

4. In New Zealand, widespread aerial application of baits treated with 1080 to control possums and rabbits began in the late 1950s and it has been a feature of small mammal pest control since then. 1080 and Brodifacoum (which can only be used in limited circumstances) are the only toxins licensed to be applied by aircraft. Two further toxins, Zinc Phosphide and PAPP are currently receiving research attention as alternative toxins for aerial delivery, broadening the range of pests that can be targeted.

5. Aerial 1080 application provides a fast, large scale, effective pest control method. The key advantage of this technique is that it is especially effective when the Department responds to stochastic events. These include predator irruptions generated by beech mast events or attempts to suppress a particular pest at a critical time in the life cycle of a species being protected. For example, in the Dart Valley the mohua population that is vulnerable to rats predating on eggs, chicks and incubating females, has thrived due to aerial 1080 applications, whereas in the non-treatment area mohua are no longer present.

6. There are clear indications that a widespread predator irruption generated by a beech mast event can be expected in spring-summer 2014/15.

7. In our briefing dated 11 October 2013 we identified that the Department of Conservation will strategically increase its use of aerial 1080 for pest animal control by 50,000 ha over that previously planned for this financial year and achieve a similar lift in each of the subsequent five years. We noted that the amount of aerial 1080 applied in any given year will vary according to episodic events and that the suite of work will be strategically determined to achieve the best for conservation in New Zealand.

8. This briefing is intended to update you on five streams of work arising from these undertakings:

    a. The increase in area planned to be treated in 2013/2014
    b. Planning for subsequent increases in area treated annually
    c. Planning for response to predicted major "beech mast" event and associated pest plagues
    d. The current situation with respect to Resource Consents
    e. Progress in the work to reduce transaction costs associated with RMA consents.

Increase in area to be treated in 2013/2014

9. In 2012/13 the Department undertook aerial 1080 control over 105,037 ha. Operations either completed or underway in 2013/2014 total c. 161,939 ha.

10. The operations are listed in Table 1 and shown in Maps 1 and 2. Highlighted operations in Table 1 are yet to be completed.

Table 1 Planned operations of aerial 1080 by DOC: 2013/2014

Region	Treatment Area name	Ha.	Values
CNI	Waitaanga	17,814	Protect forest canopy and ecosystem function (totara, *Dactylanthus*, mistletoe, kiwi)
CNI	Whitecliffs/ Paraninihi	2,278	Protect forest canopy and ecosystem function, kiwi and progress preparation for kokako re-establishment
ESI	Hurunui (South Branch)	2,500	Orange fronted parakeets, mohua
ESI	Poulter	6,920	Orange fronted parakeets, mohua
ESI	Mt Dobson	2,783	Good neighbour (Regional Pest Management) wallaby control
LNI	Project Kaka (Tararua Range)	22,200	Ecosystem function and restoration of forest bird populations (research site)
NNI	Pirongia	13,657	Kohekohe & kamahi forest, ecosystems, species and habitats, including native fish and montane forest.
NWSI	Cascade	11,338	Southern rata, kamahi, mistletoe, fuchsia. Forest birds including high kaka populations.
NWSI	Haast	9,448	Southern rata, kamahi, mistletoe, fuchsia. Forest bird populations.
NWSI	Hope	7,153	Southern rata, kamahi, mistletoe, fuchsia. Forest birds including high kaka populations.
NWSI	Landsborough lower	3,900	Kaka, mistletoe, mohua
NWSI	Leslie	9,946	Multiple species including *Powelliphanta* snails, kaka, whio, mistletoe, *Pittosporum patulum*
NWSI	Mataketake	20,715	Southern rata, kamahi, mistletoe, fuchsia. Forest birds including high kaka populations.
NWSI	Moeraki	4,655	Southern rata, kamahi, mistletoe, fuchsia. Forest birds including high kaka populations.
NWSI	Tennyson Inlet (Mt Stanley)	4,475	Land snails *Powelliphanta hochstetteri obscura*, robin and rifleman (Research site)
NWSI	Whakapohai	3,957	Southern rata, kamahi, mistletoe, fuchsia. Forest birds including high kaka populations.
NWSI	Otira	10,700	Rata, totara and kamahi, fuchsia, wineberry and pate. Forest birds including kaka, kea, whio and great spotted kiwi.
SSI	Pt Catlin's Conservation Park (Catlin's Chaslands)	7,500	Mohua
	Total	**161,939**	

NNI = Northern North Island, CNI = Central North Island, LNI = Lower North Island, NWSI = North West South Island, ESI = Eastern South Island SSI = Southern South Island

Planning for subsequent increases in ha treated annually

11. The Department currently manages c. 800,000 ha. for conservation reasons using aerial 1080. An additional proportion of public conservation land (pcl) receives similar treatment for the purposes of bovine Tb control delivered by Ospri/TbFree New Zealand. A further area of

public conservation land (12,359ha) is also likely to receive pest control using this tool through the Project Janszoon initiative in Abel Tasman National Park.

12. Increasing the area treated by aerial 1080 each year will translate into several operational outputs:

    a. New areas will be incorporated into the Department's programme i.e., there will be an increase to the 800,000 ha figure, meaning an additional 200,000 ha over 4 years.

    b. The frequency of treatments for existing areas may be increased to result in improved outcomes for threatened species or ecosystem processes

    c. The Department may collaborate in more places with Ospri/TbFree New Zealand to "tune" those operations to give better outcomes for threatened species or ecosystem processes

    d. The Department may collaborate in more places with private partners to assist them to undertake operations to protect threatened species or ecosystem processes.

13. Since our previous briefing on this subject, we have identified the areas that are expected to receive treatment in 2014/2015 under our "normal" regime. These operations are listed in Table 2 and shown in Maps 1 and 2. The sites listed in Table 2 are the priority sites for 2014/15.

Table 2 Scheduled operations of aerial 1080 for DOC: 2014/2015

Region	Site name	Ha.	Values
CNI	Awaroa-Hauturu	6,039	Protect and maintain indigenous species (kamahi, kohekohe, mahoe and mangeao) and their habitats and maintain forest cover. Protect the rare *Hebe scopulorum* (Awaroa).
CNI	Tongariro*	20,000	Whio and kiwi protection (Tongariro Forest Kiwi Sanctuary and Tongariro Whio security site). (10,000ha DOC funded, 10,000 ha TbFree NZ funded).
NWSI	Caanan - Abel Tasman	6,288	Maintain a viable population of three species of land snail: *Rhytida o'connori, Rhytida greenwoodi* var *webbi* and *Powelliphanta hochstetteri hochstetteri* (yellow-based). Forest ecosystem health will be enhanced by the improved condition of canopy and sub-canopy tree species.
SSI	Hokonui	1,200	Maintain functional ecosystems. Collaborative operation with TbFree NZ
NWSI	Isolated Hill	2,598	Maintain functional ecosystems. Nationally Critical *Cheesemania* "Chalk Range" and National endangered *Myosotis colensoi*. Whio and Falcon.
CNI	Kia Wharite Block 1	30,000	Forest canopy, ecosystem function, whio, kiwi
CNI	Pouiatoa	3,800	Protect forest canopy and ecosystem function, kiwi and progress preparation for kokako re-establishment
SSI	Waitutu	25,000	Protection of the health and integrity of the forest canopy and associated plant communities particularly: Mistletoe species *Peraxilla colensoi, P. tetrapetala, Alepis flavida*, and *Leostylus micranthus*). Kaka, mohua.
	Total	**75,000** approx	

14. A final decision on which of the 24 sites will be added to the treatment programme has not yet been made.

15. Several processes are underway to enable that decision:

    a. Strategy planning with respect to beech mast response (refer paras 18-32)
    b. Development of an approach to adding new areas to the treatment programme based on achievement of priority natural heritage protection goals
    c. Optimisation of operational designs or strategic approaches to minimise intervention costs
    d. Improving our national collaboration with TBfree New Zealand to improve outcomes for both conservation and Tb control
    e. Review of financial resources available.

16. These decisions will be finalised early in 2014, as the situation with respect to the mast event/predator irruption becomes clearer. If the predator irruption does occur then about half of the increased treatment programme that totals 200,000ha will occur in beech forests, and will be part of the beech mast response.

Planning to respond to the predicted major "beech mast" event and associated pest plagues

17. Predictions for a heavy beech mast (seedfall) in the summer/autumn of 2014 are strong. This will create an environment for elevated predator numbers in 2014/15. Large scale aerial 1080 response is being planned to control pests in areas containing protected species that are most at risk from predators.

18. Large and widespread beech masts occur approximately every 10-15 years with smaller, localised masts at other times. The last large and widespread beech mast in the South Island was in 2000. Beech masts are triggered when the temperature difference between two successive years is greater than about 1 degree. This was the case between 2012 and 2013 and observations of beech flowering throughout the North and South Island in October and November in 2013 support the prediction that this summer will produce a very large seedfall.

19. Rat and stoat irruptions occur in the spring and summer following beech mast. Rats are normally very rare in beech forests but the availability of seeds mean that rats can breed throughout the year and build to plague levels. Abundant seed falling in the autumn and winter allows mice and rats to breed during the winter and spring, when they normally would not. By late spring-early summer their numbers can reach plague proportions. Stoats only breed in early summer, but after a beech mast they have an abundant rodent food supply and can produce many more young than non-mast years. This results in plagues of both rodents and stoats in the spring and summer following beech mast and these predators also eat a wide range of native invertebrates, lizards bats and birds.

20. Ground and hole nesting birds, and roosting bats are particularly vulnerable to rats and stoats. Populations of these species will be seriously affected by a rat/stoat irruption. A number of populations of nationally critical species will be at risk of serious decline or local extinction if no protection is provided. Species particularly at risk include orange fronted parakeets, mohua, long tailed bats, short tailed bats, rock wren, whio, kaka, kea, kiwi and some species of *Powelliphanta* snails.

21. Pest irruption indicators will be collected at numerous South Island sites through summer and autumn and a final decision on what sites require protection will be made in June 2014. Planning is progressing on a worst case scenario where predator irruptions are anticipated over all the vulnerable sites listed (Table 3).

22. The beech masting event is not confined to the South Island but generally there are fewer sites in the North Island where highly vulnerable species remain extant in beech forests.

23. Beech forest ecosystems occur over about 3,000,000 ha of the South Island, mostly on public conservation land.

24. Planning will focus on effective control of predators over the core beech forest areas plus large buffers to provide a larger biodiversity gain and a longer period of reduced pest

pressure covering around 656,000ha (22% of beech forests). The operational cost (excluding overheads) of this programme at $17 per ha is estimated to cost approximately $11 million.

25. Lesser treatment options have been examined but are not considered effective to protect the amount of biodiversity at risk.

26. The Department is working through options as to how to fund this programme.

27. The Department's South Island Pest Response Advisory Group (SIPRAG) is coordinating this response but the group has been extended to include representatives from the North Island.

28. The response process will include:

    a. Monitoring beech seedfall at 14 South Island sites
    b. Monitoring rodent numbers using tracking tunnels at 30 South Island sites
    c. Modelling potential rodent and stoat growth trajectories through winter to summer 2014/15. This will inform the decision on optimal operational timing at each location.
    d. Final selection of sites for pest control by June 2014. This will be a recommendation from SIPRAG to the DDG Conservation Services.
    e. Preparing applications for Resource Management Act, Department of Conservation and Medical Officer of Health consents for all potential treatment sites. The operational timeframe provides sufficient lead time to prepare these.
    f. Coordinating departmental capacity to deliver multiple large aerial 1080 programmes. Capacity and experience varies between Regions and to deliver this work the Department will need to share existing resources to ensure all operations are planned and managed safely and effectively.
    g. Coordinating bait supplies. New Zealand has one manufacturer of 1080 bait and production of a large quantity of bait will require forward planning. This is underway.
    h. Coordinating helicopter services. New Zealand has many helicopter service companies with experience in aerial 1080 delivery. Contracts will be awarded through the normal Government procurement processes (GETS).
    i. Coordinating with TBfree New Zealand operations. Discussions are underway between the Department and Regional Managers of TBfree New Zealand to achieve operational timing and alignment with Department programmes.
    j. Joint programmes that will result in more cost effective delivery.
    k. Developing a public awareness strategy.
    l. A significant programme as planned will have considerable public interest. A comprehensive awareness strategy will be developed by the Department.

29. TBfree New Zealand supports this collaborative approach in principle. Departmental staff are working at a regional and national level to achieve coordination.

30. The two key areas where integration will be achieved are:

    a. timing of operational delivery to the September-November 2014 timeframe and
    b. identifying operational areas that could be modified to align with adjacent departmental operations.

31. An indicative schedule of sites likely to be included in the Department's response is shown in Table 3. Map 3 illustrates the indicative sites where aerial 1080 is likely to be used in response to a mast event.

Table 3 Indicative schedule of sites where an aerial 1080 response is likely as a result of a mast event.

Region	Site	Optimum treatment ha	Species to be protected
NWSI	North Kahurangi (Anatoki, Castles)	22,000	Kiwi, kea, kaka, *Powelliphanta* spp.
NWSI	East Kahurangi (Wangapeka)	45,000	Whio, kea, kaka, *Powelliphanta* spp.
NWSI	West Kahurangi (Heaphy, Oparara, Kahurangi-Gouland)	97,000	Whio, kiwi, kea, kaka, *Powelliphanta* spp., rock wren, Long tailed bats
NWSI	Mokihinui	50,000	Whio, *Powelliphanta* spp. kaka, Long tailed bats
NWSI	Maruia	50,500	Long tailed bats, kakariki, kaka, whio, mohua
NWSI	Grey Valley (Granville, Hochstetter, Atarau)	23,000	Kiwi, kaka, whio, *powelliphanta* spp. SI robins
NWSI	Marlborough Sounds (Tennyson Inlet	4,500	*Powelliphanta* spp. And forest birds
NWSI	South Westland (Abbey Rocks, Landsborough)	40,000	Mohua, kaka, Long tailed bats, Short tailed bats
NWSI	South Westland (Haast tokoeka sanctuary)	30,000	Kiwi, kaka, kea, rock wren
ESI	Canterbury (Hawdon, Poulter, Hurunui)	35,000	Orange fronted parakeets, mohua, kea,kaka, kiwi
SSI	Western Otago (Dart, Routeburn, Caples Makarora	43,000	Mohua, bats, rock wren, whio, kea, SI robin
SSI	Western Southland (Arthur, Clinton, Eglinton, Hollyford)	81,000	Long Tailed Bats, Short tailed bats, mohua, whio, kiwi, pateke, kaka, kea
SSI	Fiordland (Murchison Mountains,	50,000	Takahe,
SSI	Waitutu	30,000	Kaka, mohua
SSI	Eastern Southland (Waikaia, Catlins)	23,000	Mohua, Long tailed bats, kaka, SI robin
SSI	Fiordland (mainland adjacent to Resolution Island)	32,000	Kaka, kea, rifleman, kiwi, protect islands from stoat invasion
	Total	**656,000**	

32. All of the proposed sites listed for species protection include one or more Ecosystem Management Units that are part of the suite of sites identified to give effect to the biodiversity goal of ensuring a full range of New Zealand's ecosystems are protected in a fully functioning state. These areas will receive additional benefits from the reduction in pest animal pressure that aerial 1080 operations will deliver.

Current situation with respect to Resource Consents

33. Table 4 illustrates the variation in RMA controls on 1080 use throughout the country.

Table 4 List of the number of permitted activity rule conditions per Regional Council.

Region	Aerial 1080 Activity Status	Number of permitted activity rule conditions
Northland	Controlled	-
Auckland	Permitted, Permitted*	7, 4*
Waikato	Discretionary	-
Bay of Plenty	Discretionary	-
Taranaki	Permitted	5
Gisborne District	Permitted	2
Hawkes Bay	Permitted	8
Manawatu-Wanganui (Horizons)	Permitted	3
Greater Wellington	Controlled	-
Nelson City	Permitted	3
Tasman District	Controlled	-
Marlborough District	Permitted	4, 2***
West Coast	Controlled	-
Canterbury	Permitted, Controlled **	8
Chatham Islands	Permitted	3
Otago	Permitted	5
Southland	Controlled	-

* *Permitted in Regional Plan: Air Land and Water (7 conditions), Permitted in Proposed Unitary Plan (4 conditions)*

** *Permitted in Natural Resources Regional Plan (8 Conditions), Controlled in Proposed Land and Water Regional Plan*

*** *4 Conditions in Marlborough Sounds Resource Management Plan, 2 Conditions in Waiau/Awatere Resource Management Plan*

34. For aerial 1080 operations planned for 2014/2015 a variety of consent situations apply.

35. On the West Coast many of the areas have existing consents that were issued for 10+ years. Other sites such as Westland National Park do not have consents and an application will need to be lodged. Similarly, for some of the operations in the northern South Island new consents will be required, and an application for the Abel Tasman National Park is currently being prepared.

36. For operations listed in Table 2 the Awaroa-Hauturu operation is covered by a consent issued to existing contractors, the Caanan - Abel Tasman operation is part of the Abel Tasman National Park application, Hokonui will be undertaken under an existing consent held by TbFree New Zealand, Kia Wharite Block 1 and Pouiatoa do not require consents, and consents will need to be sought for Isolated Hill and Waitutu.

Progress with work to reduce transaction costs associated with RMA consents

37. Acquiring resource consents is a key part of an aerial 1080 operation. The existing regulatory regime involves significant duplication across consenting authorities, at times is inconsistent, time consuming and expensive.

38. As noted in our previous paper, to reduce transaction costs, the Department, TBfree New Zealand, the Ministry for Primary Industries and the Waikato Regional Council are exploring the development of a National Environmental Standard (NES) or proposing national consistency measures in the RMA reform.

39. There are four processes underway which will provide opportunity for improvement:

- Amend the national legislative framework to reduce duplication between the Resource Management Act 1991 (RMA) and Hazardous Substances and New Organisms Act 1996. (Lead appointed and one cross agency meeting completed)

- Standardise regional RMA plans and processes to "streamline" the 1080 consenting process by developing national directions such as a National Environmental Standard for 1080. This would override the rules in individual regional council plans. (Two managers appointed. TB free New Zealand leading across agencies. Two DOC staff involved)

- Improve national consenting tools at legislative, RMA Plan, or consent level. This requires coordination between Ministers for Primary Industries, Conservation, Environment and Local Government and building cross-party support. (Overlaps with the above and requires political support and leadership from Ministers)

- Build "social licence" to strengthen community understanding and acceptance for aerial 1080 application as an effective tool to enhance indigenous biodiversity. (A process is underway to prepare a Communications Strategy, and Departmental staff will liaise with your office).

Attachments (hard copy only due to file size)

Map 1: Routine indicative planned aerial 1080 operations for 2013/14 and 2014/15

Map 2: Indicative Planned aerial 1080 response to a mast event in the North Island

Map 3: Indicative Planned aerial 1080 response to a mast event in the South Island

ENDS