	PPT of source data for site scores	DOC-7218034
Auto data: Site prioritisation process	**TNM name**	NPCP name for the site
	Key fauna and plants	A list of 64 taxa have been identified as key species for management under the programme. These columns indicate which species are to be managed as key species for each site. Separate columns for fauna species (one column for all Powelliphanta spp), one column for all key managed plant species. NPCP management at each site is designed to protect the key species as a priority.
	Benefit species	Threatened species at the site, further to any key species for that site, that NPCP management is designed to protect. Generally the pest management, optimised for the key species, will meet the recovery/protection needs of the benefit species. Where the optimal pest control needs differ between key species and benefit species priority should be given to the key species.
	rank	Site ranking based on the overall site score that is based on species score, management score, and forest score (See DOC-7218034)
	Hectares_air	Area in hectares of aerial treatment required
	treat.freq.air	Annualised aerial treatment frequency. -For mast sites (see below) this is based off of an estimate of mast frequency, the number of treatments per mast (1 or for some sites 2 treatments in some mast events), and the time to aerial retreatment if a mast did not occur. -For non mast sites this is based on the planned retreatment interval
	Hectares_ground	Area in hectares of ground treatment required
	treat.freq.ground	Annualised ground treatment frequency
	mast.site	Site is classed for aerially applied treatment as either: **"non-mast"** =aerial treatment timing and frequency will not be determined by masting (prevalent forest type/target pest dynamics/species vulnerability do not require it) **"mast"** = aerial treatment frequency and timing will be for managing predator irruptions from mast events. **1 aerial treatment per mast event**. **"mast2"**= aerial treatment frequency and timing will be for managing predator irruptions from mast events . **2 aerial treatments may be required** per mast event
	non.mast.return	Number of years between aerial treatments for non-mast sites; for mast/mast2 sites this figure is the number of years until retreatment in the absence of any mast response.
	forest_score	Forest score value (see DOC-7218034) based on vulnerability, condition, size & shape
	forest_score_wo_area	Forest value score without the effect of area
	spp_score	Species score value (see DOC-7218034) based on threat score, population score and vulnerability score
	Payed by others (%)	Percentage of the treatment cost paid for by others (not DOC)
Manual data: Manually entered advice/planning informtaion		
	Aerial treatment type	The aerial operation treatment frequency and timing advice (one of 7 types) for the site. This is based on the forest type/pest dynamics. The linked document describes the approach, advised timing and rationale, expected efficacy and limitations.
	Target pest(s)	Pests that must be controlled to protect the key managed species, benefit species, forest values (possum vulnerable). Pests that must be controlled to protect the key species should be indicated in bold.
	Key Species	A list of 64 taxa have been identified as key species for management under the programme. These columns indicate which species are to be managed as key species for each site. Separate columns for fauna species (one column for all Powelliphanta spp), one column for all key managed plant species. NPCP management at each site is designed to protect the key species as a priority.
	Outcome target(s)	SMART target(s) for the key managed species, benefit species, forest values. These state in a measurable way, what the NPCP is trying to achieve at the site, so monitoring can be undertaken to determine if the purpose of the work is being achieved. Targets for key species are a priority.
	Result target(s)	SMART target(s) for the target pests. These need to describe the pest level(s) (and timing(s)) required to achieve the outcome targets.
	Aerial treatment timing(s)	Timing of aerial treatment required to achieve result and outcome targets (protect the species and/or forest values). The advised timing should provide maximum time period 'window' for aerial treatment where targets can be confidently achieved, but could indicate preferred/ideal and acceptable periods to assist with scheduling of treatment accross sites. "mast" and "mast2" sites should have the optimised mast cycle treatment timings expressed. This will depend on the key/benefit species vulnerabilities, pest and mast system dynamics, and irruption magnitude potential.
	Aerial operation triggering information	Suggested thresholds (deltaT or pest relative abundance level) and their timings that trigger the need for aerial treatment in order to achieve result targets.
	Ground control	If ground control is also required in order to achieve the NPCP outcome for the site then describe this: target pest(s), result targets, scale, frequency, timing, basic method.
	Comments/issues to resolve	Identfied issues with any of the current content noted here
	Last manual entry date and author	Most recent entry date for manual columns and the person(s) responsible for it.
	Benefit species	Threatened species at the site, further to any key species for that site, that NPCP management is designed to protect. Generally the pest management, optimised for the key species, will meet the recovery/protection needs of the benefit species. Where the optimal pest control needs differ between key species and benefit species priority should be given to the key species.

Result target level	**Possums**	Express level as 'RAI [Relative Abundance Index] level of/below/not exceeding XX% RTC [Residual Trap Catch from NPCA/Bionet possum population monitoring method]' The sought level of possum (relative) abundance is expressed in RTC for consistency. Evaluation of possum abundance relative to target levels may be done using other RAI methods and will need to make an estimate of the equivalent level with the actual method used. Operational plans or reports may express target levels in the planned monitoring index level with the estimated equivalence.
	Rats	Express level as either % 1-night TTI (Tracking tunnel Index method ~Gillies and Williams methodology) or % 21-night TTI (Method Ref?). The choice of which method to express the target in will depend on the rat abundance range at which sensitivity is required. 1-night TTI has been widely used and is generally sensitive enough for defining sought rat target or threshold levels relating to rat sensitive values in forest systems. 21-night index may be necessary or preferable for resolving relative rat abundance at low levels. This may be required for some highly rat sensitive values (and particularly in alpine systems).
	Stoats	Express level as either % 3-night TTI (Tracking tunnel Index method ~Gillies and Williams methodology) or % 21-night TTI (Method Ref?). The choice of which method to express the target in may be decided by the (relative) abundance range at which sensitivity is required, and/or the monitoring plan intentions. 21-night TTI provides a higher level of sensitivity to the presence of stoats at low abundances than the 3 night index. At some sites where there is confidence that outcome targets will be met with a result target level expressed in 3 night TTI it may be OK to continue to use the 3-night index to express the target and for the monitoring.

NPCP_name	District	Aerial_treatment_type	Target_pests	Archeys_Key	Hochstetters_Key	Kaka_Key	Kea_Key	Kiwi_Key	Kokako_Key	LT_bats_Key	Mohua_Key	OFK_Key	Powelliphanta_Key	Rock_wren_Key	ST_bats_Key	Whio_Key	YC_parakeet_Key	Alepis_flavida_Key	Peraxilla_colensoi_Key	Peraxilla_tetrapetala_Key	Tupeia_antarctica_Key	Dactylanthus_taylorii_Key	Pittosporum_patulum_Key	Pittosporum_turneri_Key	Coprosma_waima_Key	Olearia_crebra_Key	Ackama_nubicola_Key	total_key_species_at_site
Abbey Rocks-Mataketake	#REF!	4.Sustained stoat and pulsed rat control in diverse masting forests using an aerial operation every 3 years	**Stoats, rats, possums**			1											1		1	1								4
Abel Tasman	Golden Bay	Not priortised																										
Anaura-Hikuwai	#REF!	Not priortised																										0
Arawhata	South Westland	2.5.Sustained stoat and rat control in beech dominated forests where red beech is absent using up to two aerial operation per mast	**Stoats, rats,** possums					1						1														2
Arthur's Pass East	#REF!	2.Sustained stoat and rat control in upland beech dominated forests using up to two aerial operations per mast	**Stoats, rats, possums**			1		1				1		1		1	1						1					7
Arthur's Pass West/Otira	Hokiika	5.Sustained stoat and pulsed rat control in upland SI rata-kamahi forest using an aerial operation every 5 years	**Stoats, rats, possums**					1						1														2
Beresford Range	#REF!	2.5.Sustained stoat and rat control in beech dominated forests where red beech is absent using up to two aerial operation per mast	**Stoats, rats, possums**							1	1						1		1									4
Blue Mountains Mohua	#REF!	2.5.Sustained stoat and rat control in beech dominated forests where red beech is absent using up to two aerial operation per mast	**Stoats, rats**								1																	1
Clinton-Arthur-Cleddau	#REF!	1.Sustained stoat and pulsed rat control in upland beech dominated forests using a single aerial operation per mast	**Stoats,** possums, rats			1		1								1				1								4
Cobb	#REF!	1.Sustained stoat and pulsed rat control in upland beech dominated forests using a single aerial operation per mast	**Stoats,** rats, **possums**				1						2							1			1					5
Copland	#REF!	5.Sustained stoat and pulsed rat control in upland SI rata-kamahi forest using an aerial operation every 5 years	**Possums**, stoats, rats											1														1

NPCP_name	Outcome_targets	Result_targets	Timing_notes
Abbey Rocks-Mataketake	1. Kaka population is stable or increasing when evaluated by call rates from ARDs and/or other abundance monitoring measures. 2. Yellow-crowned parakeet population is stable or increasing, evaluated by call rate trends across ARD surveys. 3. Mistletoe Foliage cover is > 50%; <5% of plants have any possum browse.	1. Mustelid 21-night tracking does not exceed 10% in the period Nov-April for 2 years in 3. 2. Rat 1-night tracking index does not exceed 5% for the period November-March for at least 1 year in 3. 3.Possum RAI level does not exceed 2% RTC	
Abel Tasman			
Anaura-Hikuwai			
Arawhata	1. The Haast tokoeka population is increasing as indicated by call rate trends across call count or ARD surveys. 2. The rock wren population is increasing as indicated by trends in the number of birds per km of transect across surveys. 3. Possum vulnerable plant species (including ...) dieback levels and foilar cover maintenence is not being impacted by possum browse levels. 4. Kaka population is increasing, evaluated by trends in call rates across ARD surveys. 5. Kea population is increasing, evaluated by trends in call rates across ARD surveys.	1. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Irruptive stoat populations are always controlled to low levels in the 1st quarter of yr 2. 3. Rat 1-night tracking index never exceeds 30% 4. Annual-average 1-night rat tracking level is less than 10%. 5. Possum RAI level does not exceed 2% RTC.	
Arthur's Pass East	1.By 2030, the OFK population has reached 300 adult birds in the wild and is growing strongly. 2.By 2030, the mohua population has reached 500 adult birds and is growing strongly. 3.Great spotted kiwi population is increasing by a rate of at least 2% per annum indicated by call rate trends across call count or ARD surveys. 4. Kaka population is increasing, evaluated by call rates from ARDs and/or other abundance monitoring measures. 5. Number of whio pairs on surveyed river sections is increasing. 6. The mean count of rock wren increases to >2 per transect and is maintained. 7. Yellow-crowned parakeet population is increasing, evaluated by call rate trends across ARD surveys. 8.Mistletoe Foliage cover for uncaged monitored plants is > 50%; <5% of plants have any possum browse 9. Kea population is increasing when evaluated by call rates from ARDs. 10. *Pittosporum patulum*.......	1.Annual-average 1-night rat tracking is <5% in OFK and mohua habitat (e.g. <1000m). 2.1-night rat tracking never exceeds 30% [Review this threshold]in OFK and mohua habitat. 3.21-night rat tracking does not exceed 5% in the alpine zone. 4.21-night mustelid tracking rates are <5% in all summers in OFK and mohua habitat. 5.Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 6.Possum RAI level < 2% RTC.	
Arthur's Pass West/Otira	1. The mean count of rock wren increases to >2 per transect and is maintained. 2.Great spotted kiwi population is increasing by a rate of at least 2% per annum indicated by call rate trends across call count or ARD surveys. 3. Rata foliage cover levels are not compromised by possum browse.	1. Possum RAI level does not exceed 10% RTC. 2. Mustelid 21-night tracking index level does not exceed 10% for 2 years in 5.	
Beresford Range	1. Long-tailed Bat abundance is increasing, evaluated by pass rate trends across ARD surveys. 2.The mohua population is increasing as indicated by trends across surveys in the mean number of mohua groups per km detected on transects and by call rates trends across ARD surveys. 3. Yellow-crowned parakeet population is increasing as indicated by call rates from ARDs. 4. Mistletoe Foliage cover for uncaged monitored plants is > 50%; <5% of plants have any possum browse	1. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Irruptive stoat populations are always controlled to low levels in the 1st quarter of yr 2. 3. Rat 1-night tracking index never exceeds 30% 4. Annual-average 1-night rat tracking level is less than 10%. 5. Possum RAI level does not exceed 2% RTC.	
Blue Mountains Mohua	1.The mohua population is increasing as indicated by trends across surveys in the mean number of mohua groups per km detected on transects and by call rates trends across ARD surveys.	1.Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Irruptive stoat populations are always controlled to low levels in the 1st quarter of yr 2. 3. Rat 1-night tracking index does not exceed 10%	
Clinton-Arthur-Cleddau	1. Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 2. Number of whio pairs on suveyed river sections is increasing. 3. Misletoe populations are stable or increasing as indicated by: Foliage cover is >50%; <5% of plants have any possum browse; recruitment plots measure new plants at a rate that exceeds or equals the loss rate of tagged plants.	1. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Mustelid 21-night tracking does not exceed (<5% 21 night TTI) in the 1st quarter of yr 3 3. Irruptive stoat populations are always controlled no later than the May of yr 2. 4. 98% kill rate for rodents in all operations. 5. Possum RAI level does not exceed 2% RTC	Go post germination
Cobb	1. Kea population is increasing when evaluated by call rates from ARDs. 2. Live *Powelliphanta* density in repeat measured plots is stable or increasing 3. Mistletoe Foliage cover for uncaged monitored plants is > 50% 4. *Pittosporum patulum* .... 5. Number of whio pairs on surveyed river sections is increasing 6. Great Spotted Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys.	1. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Mustelid 21-night tracking does not exceed (<5% 21 night TTI) in the 1st quarter of yr 3 3. Irruptive stoat populations are always controlled no later than the May of yr 2. 4. 98% kill rate for rodents in all operations. 5. Possum RAI level does not exceed 2% RTC	Go post germination
Copland	1. Possum vulnerable plant species (including southern rata, fuchsia) dieback levels and foilar cover maintenence is not being impacted by possum browse levels. 2.The rock wren population is increasing as indicated by trends in the number of birds per km of transect across surveys. 3. Kea population is increasing when evaluated by trends in call rates across ARD surveys.	1. Possum RAI level does not exceed 10% RTC. 2. Mustelid 21-night tracking index level does not exceed 10% for 2 years in 5.	

NPCP_name	Aerial_treatment_timings	Aerial_operation_triggering_information	Ground_control	Comments_and_issues_to_resolve
Abbey Rocks-Mataketake	July-October	At return year (3 yearly) as per timing (June-August) if delta T ≤ 0.5. If delta T > 0.5, consult TAG		
Abel Tasman				
Anaura-Hikuwai				
Arawhata	Mast treatment timing: •Light mast and magnitude rodent irruption potential:Immediately following beech seed germination yr 1 (Nov-Feb). •Medium or higher magnitude rodent irruption potential: Oct-Dec yr 0 (pre beech flowering, pre seed set) AND THEN IF REQUIRED •Post mast (Jan-March yr 2). Non mast year treatment timing: • Timing as required to achieve average annual tracking rate targets for rats and stoats OR to ensure time between aerial treatment (mustelid control) does not exceed 3 years.	Mast treatment: •If deltaT for the next year is 0.5 to 1.2 or 200-1000 seeds/m2 AND May 1-night (year 0) rat tracking is <5% = trigger post mast operation (from immediately following seed germination in yr 1, Nov-Feb). •If deltaT for the next year is 0.5 to 1.2 or 200-1000 seeds/m2 AND May 1-night (year 0) rat tracking is ≥5% = trigger pre mast operation (Oct-Dec yr 0). AND Plan post mast operation, ask TAG advice for triggering post-mast operation •If deltaT for the next year is >1.2 to 2.0 or 1000-1500 Seeds/M² = trigger pre mast operation (October-Dec yr 0) AND Plan post mast operation, ask TAG advice for triggering post-mast operation •If deltaT for the next year is >2.0 or >1500 Seeds/M² = trigger pre mast operation (October-Dec yr 0) AND Plan post mast operation. Trigger post mast operation if yr 1 May 1 night rat tracking is≥5%. Ask for TAG advice for triggering post-mast operation if MAy 1 night tracking is <5%. Non mast treatment: Operation triggered if •Mustelid monitoring survey results indicate that mustelid or rat result targets (of not exceeding 10% 21 night tracking rate for more than one consecutive summer/average 1-night tracking rate of no greater than 10%) will be exceeded. OR Interval since last control operation has reached 3 years	Stoat trapping network in the Haast kiwi sanctuary component.	
Arthur's Pass East	Mast treatment: Rat irruption predicted (year zero rat abundance plus mast prediction): • Sep-Dec (pre seed set) AND SUBJECT TO RAT ABUNDANCE LEVELS: • Feb-March (16 months later following seed germination) Non mast year treatment: • Timing as required to achieve average annual tracking rate target	Mast: Year 0: Delta T for following year >0.7 and rat presence in August is primed for levels to breach 30% 1 Night TTI target before Nov of year 1 = Sep-Dec pre seed set operation. THEN Year 1-2: If 1-night rat tracking in May is >5% assess (model growth rate relative to 30% 1-night TTI target, and 10% non mast target), confirm and plan for post mast operation from Feb-March of yr 2. Confim post gemination operation based on actual tracking rate in November. Non mast (including mast years 0 &2): Operation triggered if monitoring survey results indicate that mustelid or rat result targets (of not exceeding 10% 21 night tracking rate for more than one consecutive summer/average 1-night tracking rate of no greater than 5%) will be exceeded.	OFK and Mohua habitat: •Best practise stoat trap network throughout OFK and mohua habitat. All potential OFK or mohua habitat is within 500m of a trapline. Traplines cleared and baited monthly. •Bait station grids. Grids installed and operated wherever >3 OFK pairs are located within 100ha. Within this, all nests are >100m from the edge of a grid. Baiting from December-April each year, regardless of tracking rates, plus August-December in mast years. •Feral cat control. GSK and Rock Wren: •Stoat trap network. 30,000 ha of stoat trap network embedded within larger aerial 1080 area. No GSK, kea or rock wren habitat >2km from a trapline within this area.	
Arthur's Pass West/Otira	March-Sep (though not critical)	At return year (5 yearly) as per timing (March-Sept)		
Beresford Range	Mast treatment timing: •Light mast and magnitude rodent irruption potential:Immediately following beech seed germination yr 1 (Nov-Feb). •Medium or higher magnitude rodent irruption potential: Oct-Dec yr 0 (pre beech flowering, pre seed set) AND THEN IF REQUIRED •Post mast (Jan-March yr 2). Non mast year treatment timing: • Timing as required to achieve average annual tracking rate targets for rats and stoats OR to ensure time between aerial treatment (mustelid control) does not exceed 3 years.	Mast treatment: •If deltaT for the next year is 0.5 to 1.2 or 200-1000 seeds/m2 AND May 1-night (year 0) rat tracking is <5% = trigger post mast operation (from immediately following seed germination in yr 1, Nov-Feb). •If deltaT for the next year is 0.5 to 1.2 or 200-1000 seeds/m2 AND May 1-night (year 0) rat tracking is ≥5% = trigger pre mast operation (Oct-Dec yr 0). AND Plan post mast operation, ask TAG advice for triggering post-mast operation •If deltaT for the next year is >1.2 to 2.0 or 1000-1500 Seeds/M² = trigger pre mast operation (October-Dec yr 0) AND Plan post mast operation, ask TAG advice for triggering post-mast operation •If deltaT for the next year is >2.0 or >1500 Seeds/M² = trigger pre mast operation (October-Dec yr 0) AND Plan post mast operation. Trigger post mast operation if yr 1 May 1 night rat tracking is≥5%. Ask for TAG advice for triggering post-mast operation if MAy 1 night tracking is <5%. Non mast treatment: Operation triggered if •Mustelid monitoring survey results indicate that mustelid or rat result targets (of not exceeding 10% 21 night tracking rate for more than one consecutive summer/average 1-night tracking rate of no greater than 10%) will be exceeded. OR Interval since last control operation has reached 3 years		
Blue Mountains Mohua	Mast treatment timing: •Immediately following beech seed germination yr 1 (Nov-Feb) unless rat irruption potential is unusually high (TAG to advise if pre-mast operation is required) Non mast year treatment timing: • Timing as required to achieve tracking rate targets for rats and stoats OR to ensure time between aerial treatment (mustelid control) does not exceed 3 years.	Mast treatment: •If deltaT for the next year is 0.5 to 1.2 or 200-1000 seeds/m2 AND May 1-night (year 0) rat tracking is ≥5% = ask TAG advice for triggering post-mast operation •If deltaT for the next year is >1.2 or >1000 Seeds/M² = plan to trigger post mast operation (from Nov-Feb post germination in yr 1) AND ask TAG advice if pre mast operation is required. Non mast treatment: Operation triggered if •Mustelid monitoring survey results indicate that mustelid or rat result targets (of not exceeding 10% 21 night tracking rate for more than one consecutive summer/ 1-night tracking rate of no greater than 10%) will be exceeded. OR Interval since last control operation has reached 3 years		
Clinton-Arthur-Cleddau	Mast treatment timing: •Sept-Dec yr 0 (pre seed set) OR • Immediately following beech seed germination yr 1 (December - Feb). Non mast year treatment timing: • Timing as required to achieve average annual tracking rate target	Mast If deltaT for the next year is >0.7 =plan post mast operation Dec-March yr 1. THEN If deltaT prediction in April of year 1 is for a higher magnitude mast in year 2 (masts two years in a row) postpone planned operation for 12 months and inform TAG If deltaT prediction in April of year 1 is for a similar or lesser magnitude mast in year 2 (masts two years in a row) seek TAG advice THEN If deltaT prediction in April of year 1 is >0.7 then wait until May rat tracking results to see if predicted levels will exceed 30% 1 Night TTI by Feb of year 2 = trigger post mast operation from Dec of yr 1 and by May yr2. Non mast treatment: Operation triggered if mustelid monitoring survey results from the previous 2 sessions indicate that 10% 21-night tracking rate target will be exceeded within the next 12 months.	Stoat trapping network	update targets, triggers and timing to new perscription
Cobb	Mast treatment timing: • Immediately following beech seed germination yr 1 (December - Feb). Non mast year treatment timing: • Timing as required to achieve average annual mustelid tracking rate target	Mast If deltaT for the next year is >0.7 =plan post mast operation Dec-March yr 1. THEN If deltaT prediction in April of year 1 is for a higher magnitude mast in year 2 (masts two years in a row) postpone planned operation for 12 months and inform TAG If deltaT prediction in April of year 1 is for a similar or lesser magnitude mast in year 2 (masts two years in a row) seek TAG advice THEN If deltaT prediction in April of year 1 is >0.7 then wait until May rat tracking results to see if predicted levels will exceed 30% 1 Night TTI by Feb of year 2 = trigger post mast operation from Dec of yr 1 and by May yr2. Non mast treatment: Operation triggered if mustelid monitoring survey results from the previous 2 sessions indicate that 10% 21-night tracking rate target will be exceeded within the next 12 months.		
Copland	March-Sep (though not critical)	At return year (5 yearly) as per timing (March-Sept)		

NPCP_name	Archeys_Benefit	Hochstetters_Benefit	Kaka_Benefit	Kea_Benefit	Kiwi_Benefit	Kokako_Benefit	LT_bats_Benefit	Mohua_Benefit	OFK_Benefit	Powelliphanta_Benefit	Rock_wren_Benefit	ST_bats_Benefit	Whio_Benefit	YC_parakeet_Benefit	Fernbird_Benefit	Kereru_Benefit	Rifleman_Benefit	Takahe_Benefit	Robin_Benefit	Lizards_Benefit	Mistletoe_Benefit	Pitpat_Benefit	Wood_rose_Benefit
Abbey Rocks-Mataketake			1	1	1		1	1		1			1	1	1						1		
Abel Tasman																							
Anaura-Hikuwai																							
Arawhata			1	1	1						1		1		1						1		
Arthur's Pass East			1	1	1			1	1		1		1	1							1	1	
Arthur's Pass West/Otira				1	1						1		1										
Beresford Range							1	1						1	1						1		
Blue Mountains Mohua								1															
Clinton-Arthur-Cleddau			1	1	1		1				1		1						1		1		
Cobb			1	1	1		1			1			1										
Copland			1	1							1		1		1								

NPCP_name	species_present_latin	species_present_common	aerial_treatment_type_no	non_mast_return	two_treat_likelihood	GIS_ID
Abbey Rocks-Mataketake	Euphorbia glauca, Peraxilla colensoi, Peraxilla tetrapetala, Eudyptes pachyrhynchus, Botaurus poiciloptilus, Hymenolaimus malacorhynchos, Bowdleria punctata punctata, Mohoua ochrocephala, Larus bulleri, Hydroprogne caspia, Charadrius bicinctus bicinctus, Haematopus finschi, Cyanoramphus auriceps, Chlidonias albostriatus, Nestor meridionalis meridionalis, Nestor notabilis, Powelliphanta rossiana \\Haast\\, Apteryx australis \\Haast\\, Chalinolobus tuberculatus	#REF!	4	3		185
Abel Tasman	Lepidium banksii, Rorippa divaricata, Peraxilla colensoi, Tupeia antarctica, Hymenolaimus malacorhynchos, Nestor meridionalis meridionalis, Powelliphanta hochstetteri hochstetteri yellow based, Rhytida webbi, Rhytida oconnori, Mokopirirakau granulatus, Naultinus stellatus, Cyanoramphus auriceps, Petroica australis australis	#REF!		3	1	81
Anaura-Hikuwai	Clianthus maximus	#REF!		6		122
Arawhata	Botaurus poiciloptilus, Hymenolaimus malacorhynchos, Xenicus gilviventris, Bowdleria punctata punctata, Nestor meridionalis meridionalis, Nestor notabilis, Apteryx australis \\Haast\\, Alepis flavida, Peraxilla colensoi, Peraxilla tetrapetala	#REF!	2.5	3	0.4	79
Arthur's Pass East	Alepis flavida, Peraxilla tetrapetala, Pittosporum patulum, Apteryx haastii, Hymenolaimus malacorhynchos, Xenicus gilviventris, Mohoua ochrocephala, Nestor meridionalis meridionalis, Nestor notabilis, Cyanoramphus malherbi, Cyanoramphus auriceps	#REF!	2	3	0.666666667	251
Arthur's Pass West/Otira	Apteryx haastii, Hymenolaimus malacorhynchos, Xenicus gilviventris, Nestor notabilis	#REF!	5	5		252
Beresford Range	Peraxilla colensoi, Melicytus flexuosus, Bowdleria punctata punctata, Mohoua ochrocephala, Chalinolobus tuberculatus, Cyanoramphus auriceps	#REF!	2.5	3	0.5	43
Blue Mountains Mohua	Mohoua ochrocephala	#REF!	2.5	3	0.1	172
Clinton-Arthur-Cleddau	Alepis flavida, Peraxilla colensoi, Peraxilla tetrapetala, Hymenolaimus malacorhynchos, Petroica australis australis, *Xenicus gilviventris* , Hemiphaga novaeseelandiae, Nestor meridionalis meridionalis, Nestor notabilis, *Chalinolobus tuberculatus* , Apteryx australis 'northern Fiordland'	#REF!	1	3		52
Cobb	Alepis flavida, Apteryx haastii, Chalinolobus tuberculatus, Hymenolaimus malacorhynchos, Melicytus (a) (CHR 355077; Matiri Range), Mokopirirakau granulatus, Mokopirirakau kahutarae, Naultinus stellatus, Nestor meridionalis meridionalis, Nestor notabilis, Peraxilla colensoi, Peraxilla tetrapetala, Petroica australis australis, Pittosporum patulum, Powelliphanta hochstetteri anatokiensis red form, Powelliphanta hochstetteri anatokiensis yellow form, Powelliphanta hochstetteri hochstetteri brown based, Powelliphanta lignaria oconnori, Rhytida stephenensis	#REF!	1	3		256
Copland	Carmichaelia juncea, Hymenolaimus malacorhynchos, Xenicus gilviventris, Bowdleria punctata punctata, Nestor meridionalis meridionalis, Nestor notabilis	#REF!	5	5		16

Dart-Caples	#REF!	2.Sustained stoat and rat control in upland beech dominated forests using up to two aerial operations per mast	Rats, stoats, possums	1 1 1 1	4	1.The mean number of mohua groups per km detected on transects has increased to 1.5 by 2030. 2.The mean number of rock wren is >1/transect in the Harris Basin by 2030. 3.Kea hourly encounter probability has increased by 5% by 2030. 4.The whio population has reached 50 pairs by 2030	1.Rat 1-night tracking index never exceeds 30% post beech seed germination in mohua habitat. 2.Rat 21-night tracking does not exceed 5% in rock wren habitat. 3.Mustelid 21-night tracking is <5% in half of all summers across the site. 4.Possum 3-night wax tag index remains below 5%.		Mast treatment timings: **Extreme rat irruption predicted (year zero rat abundance plus mast prediction)**: •Sep-Dec pre-seed set AND •Feb-March (16 months later following seed germination)** **Normal rat irruption predicted:** immediately following beech seed germination (November-December Year 1 ideal). Non mast year treatment timing: •April-August	Refer site outcomes plan	Rats: min 1,000 ha in Dart Valley mohua habitat; applied as required; bait station pesticides. Stoats: ongoing maintencne of traplines along waterways (whio habitat) to protect whio during breeding and moulting periods. Should aim for 4000 ha area surrounding core Dart Valley mohua habitat and 2000 ha+ in Harris Basin high denisty rock wren area.	Targets and triggers from site outcomes plan.	1 1 1 1 1 1 1 1	Alepis flavida, Peraxilla colensoi, Peraxilla tetrapetala, Hymenolaimus malacorhynchos, Xenicus gilviventris, Mohoua ochrocephala, Nestor meridionalis meridionalis, Nestor notabilis, Chalinolobus tuberculatus, Cyanoramphus auriceps	#REF!	2	3	1	47
Depth Peak (Mount Forbes/Charles peninsula)	#REF!	on hold		1	1								1 1 1 1 1	Peraxilla colensoi, Apteryx australis 'southern Fiordland', Hymenolaimus malacorhynchos, Hemiphaga novaeseelandiae, Nestor notabilis	#REF!		4		176
Dun Mountain	#REF!	Not priortised			0									Peraxilla colensoi, Peraxilla tetrapetala, Nestor notabilis, Powelliphanta hochstetteri consobrina, Mokopirirakau granulatus, Woodworthia maculata	#REF!		3		223
Eglinton	#REF!	2.Sustained stoat and rat control in upland beech dominated forests using up to two aerial operations per mast	Rats, stoats, possums	1 1 1 1	4	1. Kaka population is increasing, evaluated by call rates from ARDs and/or other abundance monitoring measures. 2. Yellow-crowned parakeet population is increasing, evaluated by call rate trends across ARD surveys and/or other abundance monitoring measures. 3. Long-tailed Bat population is increasing, evaluated by pass rate trends across ARD surveys. 4. The ST bat population is increasing, measured by roost emergence count surveys.	Aerial treatment area: 1.Rat 1-night tracking index never exceeds 30%. 2.Annual-average 1-night rat tracking level is less than 10%. 3.Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 4.Possum RAI level does not exceed 2% RTC. Stoat trapping network area: 1.Mustelid 21-night index level <10% is maintained.		Mast treatment timings: Rat irruption predicted (year zero rat abundance plus mast prediction): • Sep-Dec (pre seed set) AND SUBJECT TO RAT ABUNDANCE LEVELS: • Feb-March (16 months later following seed germination) Non mast year treatment timing: • Timing as required to achieve average annual tracking rate target.	Mast: Year 0: Delta T for following year >0.7 and rat presence in August is primed for levels to breach 30% 1 Night TTI target before Nov of year 1 = Sep-Dec pre seed set operation. THEN Year 1-2: If 1-night rat tracking in May is >5% assess (model growth rate relative to 30% 1-night TTI target, and 10% non mast target), confirm and plan for post mast operation from Feb-March of yr 2. Confim post gemination operation based on actual tracking rate in November. Non mast (including mast years 0 &2): Operation triggered if monitoring survey results indicate that mustelid or rat result targets (of not exceeding 10% 21 night tracking rate for more than one consecutive summer/average 1-night tracking rate of no greater than 10%) will be exceeded.	Stoat trapping area. Rat control bait station area currently operated only to treat aerial treatment exclusions.	Review the potential bait station network as a 'large' scale rat control method. To potentially manage post germination or inter mast rats to target levels? Could this be applied over an area that encompassed bat roost areas?	1 1 1 1 1 1 1 1 1 1	Alepis flavida, Peraxilla colensoi, Peraxilla tetrapetala, Hymenolaimus malacorhynchos, Petroica australis australis, Xenicus gilviventris, Bowdleria punctata punctata, Mohoua ochrocephala, Larus bulleri, Chlidonias albostriatus, Hemiphaga novaeseelandiae, Nestor meridionalis meridionalis, Nestor notabilis, Chalinolobus tuberculatus, Mystacina tuberculata tuberculata, Cyanoramphus auriceps	#REF!	2	3	1	59
Erua Wetlands	#REF!	6.Sustained possum control with pulsed rat and stoat control in diverse masting NI forests using an aerial operation every 4 years	Possums	1	1	1. Possum vulnerable plant species (*Pittosporum turneri, Melicytus flexuosus*) survival and regeneration is not being impacted by possum browse levels.	1. Possum RAI level does not exceed 5% RTC		May-September	At return year (4 yearly) as per timing (July-Sep) if delta T ≤ 0.5. If delta T > 0.5, consult TAG			1 1 1 1	Pittosporum turneri, Melicytus flexuosus, Apteryx mantelli, Hymenolaimus malacorhynchos, Chalinolobus tuberculatus	#REF!	6	4		147
Eyre Mountains	#REF!	Not priortised			0								1 1 1	Alepis flavida, Peraxilla colensoi, Peraxilla tetrapetala, Xenicus gilviventris, Powelliphanta spedeni spedeni	#REF!		4		128
Franz & Fox	#REF!	4.Sustained stoat and pulsed rat control in diverse masting forests using an aerial operation every 3 years	Stoats, rats, possums	1	1	1.Kea population is increasing, evaluated by trends in call rates across ARD surveys. 2.Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 3. Kaka population is increasing, evaluated by trends in call rates across ARD surveys.	1. Mustelid 21-night tracking index level in summervdoes not exceed 10% for 2 years in 3 2. Rat 1-night tracking index below 5% for the period November-February for at least 1 year in 3 (3-yearly, aerial treatment year). 3.Possum RAI level does not exceed 5% RTC.		June-August	At return year (3 yearly) as per timing (June-August) if delta T ≤ 0.5. If delta T > 0.5, consult TAG		Have suggested treatment timing of June-August, inmmediately prior to kea nesting.	1 1 2 1 1	Apteryx haastii, Petroica australis australis, Bowdleria punctata punctata, Nestor meridionalis meridionalis, Nestor notabilis, Apteryx rowi	#REF!	4	3		150
Garabaldi-Kakapo	Buller	2.Sustained stoat and rat control in upland beech dominated forests using up to two aerial operations per mast	Stoats, rats, possums	1 1 1	3	1. Great Spotted Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 2. The mean count of rock wren increases to >2 per transect and is maintained. 3. Live Powelliphanta density in repeat measured plots is increasing. 4. Long-tailed Bat abundance is increasing, evaluated by pass rate trends across ARD surveys.	1.Rat 21-night tracking never exceeds 5% in rock wren habitat. 2.Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 3.Possum RAI level does not exceed 2% RTC. 4. Rat 1-night tracking index never exceeds 30%. 5.Annual-average 1-night rat tracking level is less than 10%.		Mast treatment timings: Rat irruption predicted (year zero rat abundance plus mast prediction): • Sep-Dec (pre seed set) AND SUBJECT TO RAT ABUNDANCE LEVELS: • Feb-March (16 months later following seed germination) Non mast year treatment timing: • Timing as required to achieve average annual tracking rate target.	Mast: Year 0: Delta T for following year >0.7 and rat presence in August is primed for levels to breach 30% 1 Night TTI target before Nov of year 1 = Sep-Dec pre seed set operation. THEN Year 1-2: If 1-night rat tracking in May is >5% assess (model growth rate relative to 30% 1-night TTI target, and 10% non mast target), confirm and plan for post mast operation from Feb-March of yr 2. Confim post gemination operation based on actual tracking rate in November. Non mast (including mast years 0 &2): Operation triggered if monitoring survey results indicate that mustelid or rat result targets (of not exceeding 10% 21 night tracking rate for more than one consecutive summer/average 1-night tracking rate of no greater than 10%) will be exceeded.			1 1 1 1 1 1 1 1	Apteryx haastii, Bowdleria punctata punctata, Chalinolobus tuberculatus, Hymenolaimus malacorhynchos, Mokopirirakau granulatus, Mokopirirakau kahutarae, Nestor meridionalis meridionalis, Nestor notabilis, Petroica australis australis, Powelliphanta lignaria oconnori, Xenicus gilviventris	#REF!	2	3	0.5	258
Gouland	#REF!	1.Sustained stoat and pulsed rat control in upland beech dominated forests using a single aerial operation per mast	Stoats, rats, possums	1 1 6	8	1. Kaka population is increasing, evaluated by call rates from ARDs. 2. Great spotted kiwi population is increasing as indicated by call rate trends across ARD surveys. 3. Live *Powelliphanta* density in repeat measured plots is increasing 4. Long-tailed Bat abundance is increasing, evaluated by pass rate trends across ARD surveys.	1. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Mustelid 21-night tracking does not exceed (<5% 21 night TTI) in the 1st quarter of yr 3 3. Irruptive stoat populations are always controlled no later than the May of yr 2. 4. 98% kill rate for rodents in all operations. 5. Possum RAI level does not exceed 2% RTC	Retain 'nip it in bud' timing	Mast treatment timing: •Sept-Dec yr 0 (pre seed set) OR • Immediately following beech seed germination yr 1 (December - Feb). Non mast year treatment timing: • Timing as required to achieve average annual tracking rate target	Mast treatment: •If deltaT for the next year is >0.7 = trigger pre mast operation •If pre-mast operation was not done but rat tracking levels reach 30% 1 Night TTI target by Nov of year 1 = trigger post mast operation. Non mast treatment: Operation triggered if mustelid monitoring survey results from the previous 2 sessions indicate that 10% 21-night tracking rate target will be exceeded within the next 12 months.		update targets, triggers and timing to new perscription.	1 1 1 6 1 1	Apteryx haastii, Bowdleria punctata punctata, Chalinolobus tuberculatus, Hymenolaimus malacorhynchos, Melicytus (a) (CHR 355077; Matiri Range), Mokopirirakau granulatus, Nestor meridionalis meridionalis, Nestor notabilis, Oligosoma newmani, Peraxilla tetrapetala, Petroica australis australis, Porphyrio hochstetteri, Powelliphanta gilliesi jamesoni, Powelliphanta gilliesi kahurangica, Powelliphanta superba harveyi, Powelliphanta superba mouatae, Powelliphanta superba prouseorum, Powelliphanta superba richardsoni, Powelliphanta superba superba	#REF!	1	3		253
Haast TL	#REF!	7. Possum control with pulsed stoat and rat control, in all masting forests using an aerial operation every 6 years.	Possums, rats, stoats	1 1	2	1. Mistletoe Foliage cover is > 50%; <5% of plants have any possum browse, recruitment plots measure new plants at a rate that exceeds or equals the loss rate of tagged plants. 2.Kaka population is increasing, evaluated by call rates from ARDs and/or other abundance monitoring measures.	1. Possum RAI level does not exceed 2% RTC. 2.Mustelid 21-night tracking does not exceed 10% in the period Nov-April for 2 years in 3. 3. Rat 1-night tracking index does not exceed 5% for the period Nov-March for at least 1 year in 3.		July-October	At return year (6 yearly) as per timing (July-Oct) if delta T ≤ 0.5. If delta T > 0.5, consult TAG		Should these sites be treated more often (District wants 3 yearly) due to reinvasion pressure from possums, or should the block be designed to achieve targets based on 6 year return time. eg ground control or larger blocks?	1 1 1	Xenicus gilviventris, Peraxilla colensoi, Peraxilla tetrapetala, Nestor notabilis, Powelliphanta rossiana \\Haast\\	#REF!	7	6		64
Hauhungaroa	#REF!	4.Sustained stoat and pulsed rat control in diverse masting forests using an aerial operation every 3 years	Possums, rats, stoats	1 1 1 1 1 1	6	1. Kaka population is increasing, evaluated by call rates from ARDs and/or other abundance monitoring measures. 2. The ST bat population at Pikiariki measured by annual roost counts is stable or increasing. 3. Long-tailed Bat abundance is increasing, evaluated by pass rate trends across ARD surveys. 4. Yellow-crowned parakeet population is increasing, evaluated by call rate trends across ARD surveys. ~~5. At Pikiariki, *Dactylanthus* seed set occurs in a sample of marked uncaged plants.~~ 6. Mistletoe Foliage cover is > 50%; <5% of plants have any possum browse 7. *Pittosporum tuneri* adult foliage cover is not impacted by possum browse levels.	Hauhungaroa, overall site: 1. Rat 1-night tracking index below 5% for the period November-February 1 year in 13(3 yearly, aerial treatment year). 2. Mustelid 21-night tracking in Feb does not exceed 10% 2 years in 3. 3. Possum RAI level does not exceed 5% RTC.		August-October	At return year (3 yearly) as per timing (June-August) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Waipapa and Pikiariki Blocks are included in the Rangitoto site aerial operation. Stoat trappinng along main rivers (incl Waihaha, Mangatu) to protect whio.		1 1 1 1 1 1 1 1 1	Dactylanthus taylorii, Pittosporum turneri, Melicytus flexuosus, Apteryx mantelli, Hymenolaimus malacorhynchos, Callaeas wilsoni, Hemiphaga novaeseelandiae, Nestor meridionalis septentrionalis, Chalinolobus tuberculatus, Mystacina tuberculata rhyacobia, Cyanoramphus auriceps, Tupeia antarctica	#REF!	4	3		220
Hauhungatahi-Whakapapa	#REF!	Not priortised			0								1 1	Apteryx mantelli, Hymenolaimus malacorhynchos	#REF!		4		24
Hauraki - Southern Forests	#REF!	4.Sustained stoat and pulsed rat control in diverse masting forests using an aerial operation every 3 years	Rats, possums, stoats		0	1. The Archey's Frog population is increasing, as determined by trends across mark recapture plot abundance estimates. 2. The Hochstetters Frog population is increasing, as determined by trends across site occupancy surveys. 3. Long-tailed Bat pass rate is increasing, evaluated by pass rate trends across ARD surveys. 4.Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 5. Possum vulnerable tree species (including ?) dieback levels and canopy cover maintenence is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods.	Aerial treatment block targets: 1. Rat 1-night tracking index below 5% for the period Sept-Feb, 1 year in 3 (aerial treatment year). 2. Possum RAI level does not exceed 5% RTC. 3. Mustelid 21- night tracking index level does not exceed 10% in the period Sept-June, 2 years in 3 ~~Ground treatment (rat control in frog area) block targets:~~ ~~1. Rat TTI is maintained below 10% TTI year round in all years.~~		July-September	At return year (3 yearly) as per timing (July-Sep) if delta T ≤ 0.5. If delta T > 0.5, consult TAG		No key species listed in orginal prioritisat	1 1 1 1 1	Apteryx mantelli, Hemiphaga novaeseelandiae, Chalinolobus tuberculatus, Leiopelma archeyi, Leiopelma hochstetteri	#REF!	4	3		22
Hauturu and Awaroa	#REF!	Not priortised			0	2. The ST bat population is stable or increasing, evaluated by trends accross roost emergence count surveys.								Veronica scopulorum	#REF!		6		26
Heaphy Oparara Lowland	Buller	1.Sustained stoat and pulsed rat control in upland beech dominated forests using a single aerial operation per mast	Stoats, rats, possums	1 2	3	1. Great Spotted Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 2. Live Powelliphanta density in repeat measured plots is increasing. 3. Long-tailed Bat abundance is increasing, evaluated by pass rate trends across ARD surveys.	1. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Mustelid 21-night tracking does not exceed (<5% 21 night TTI) in the 1st quarter of yr 3 3. Irruptive stoat populations are always controlled no later than the May of yr 2. 4. 98% kill rate for rodents in all operations. 5. Possum RAI level does not exceed 2% RTC	Retain 'nip it in bud' timing, See 'Heaphy Lowlands' row for information on post germination operation in part of this block.	Mast treatment timing: •Sept-Dec yr 0 (pre seed set) OR • Immediately following beech seed germination yr 1 (December - Feb). Non mast year treatment timing: • Timing as required to achieve average annual tracking rate target	Mast treatment: •If deltaT for the next year is >0.7 = trigger pre mast operation •If pre-mast operation was not done but rat tracking levels reach 30% 1 Night TTI target by Nov of year 1 = trigger post mast operation. Non mast treatment: Operation triggered if mustelid monitoring survey results from the previous 2 sessions indicate that 10% 21-night tracking rate target will be exceeded within the next 12 months.			1 1 1 1 2 1	Apteryx haastii, Bowdleria punctata punctata, Chalinolobus tuberculatus, Hymenolaimus malacorhynchos, Mokopirirakau granulatus, Naultinus stellatus, Nestor meridionalis meridionalis, Nestor notabilis, Oligosoma newmani, Peraxilla tetrapetala, Petroica australis australis, Powelliphanta annectens, Powelliphanta gilliesi "Heaphy"	#REF!		1	3	274

Site	Region	Prescription	Pests	Flags (left)	Score	Outcome objectives	Result targets	Notes	Treatment timing	Trigger	Interim control	Issues	Flags (right)	Species	Common names	Ref	A	B	C	D
Heaphy-Lowlands	Buller	2.Sustained stoat and rat control in upland beech dominated forests using up to two aerial operations per mast	**Stoats, rats, possums**	1 2	3	1. Great Spotted Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 2. Live Powelliphanta density in repeat measured plots is increasing. 3. Long-tailed Bat abundance is increasing, evaluated by pass rate trends across ARD surveys.	1. Annual-average 1-night rat tracking level is less than 25%. 2. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 3. 98% kill rate for rodents in all operations. 4. Possum RAI level does not exceed 2% RTC	This operation is an aditional operation funded by Bathurst, which covers part of the Heaphy Oparara block, and follows up with a second post germination operation. This approach is expermential as we are unsure if we can achieve sustained rat control with this approach in lowland diverse masting forests	Mast treatment timings: Rat irruption predicted (year zero rat abundance plus mast prediction): • Sep-Dec (pre seed set) AND SUBJECT TO RAT ABUNDANCE LEVELS: • Feb-March (16 months later following seed germination) Non mast year treatment timing: • Timing as required to achieve average annual tracking rate target.	Mast: Year 0: Delta T for following year >0.7 and rat presence in August is primed for levels to breach 30% 1 Night TTI target before Nov of year 1 = Sep-Dec pre seed set operation. THEN Year 1-2: If 1-night rat tracking in May is >5% assess (model growth rate relative to 30% 1-night TTI target, and 10% non mast target), confirm and plan for post mast operation from Feb-March of yr 2. Confim post gemination operation based on actual tracking rate in November. Non mast (including mast years 0 &2): Operation triggered if monitoring survey results indicate that mustelid or rat result targets (of not exceeding 10% 21 night tracking rate for more than one consecutive summer/average 1-night tracking rate of less than 25%) will be exceeded.			1 1 1 1 2 1	Apteryx haastii, Bowdleria punctata punctata, Chalinolobus tuberculatus, Hymenolaimus malacorhynchos, Mokopirirakau granulatus, Naultinus stellatus, Nestor meridionalis meridionalis, Nestor notabilis, Oligosoma newmani, Peraxilla tetrapetala, Petroica australis australis, Powelliphanta annectens, Powelliphanta gilliesi "Heaphy"		#REF!	1	3		274
Hihitahi	#REF!	7. Possum control with pulsed stoat and rat control, in all masting forests using an aerial operation every 6 years.	**Possums**		0	1. Cedar-totara forest canopy maintenence and dieback is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods.	1. Possum RAI level does not exceed 10% RTC.		July-October.	At return year (6 yearly) as per timing (July-Oct) if delta T ≤ 0.5. If delta T > 0.5, consult TAG			1 1	Libocedrus bidwillii, Hemiphaga novaeseelandiae, Chalinolobus tuberculatus		#REF!	7	6		56
Hokonui Hills	#REF!	Not priortised		1	1								1 1	Tupeia antarctica, Melicytus flexuosus, Hemiphaga novaeseelandiae		#REF!		6		200
Holdsworth-Penn Creek (Project Kaka)	#REF!	1.Sustained stoat and pulsed rat control in upland beech dominated forests using a single aerial operation per mast	**Stoats,** rats**, possums**		0	1. Mistletoe Foliage cover for uncaged monitored plants is > 50%; <5% of plants have any possum browse. 2. Possum vulnerable tree species (including dieback levels) and canopy cover maintenence is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods. 3.Kaka population is increasing, evaluated by call rates from ARDs and/or other abundance monitoring measures. 4. Long-tailed Bat abundance is increasing, evaluated by pass rate trends across ARD surveys.	1. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Mustelid 21-night tracking does not exceed (<5% 21 night TTI) in the 1st quarter of yr 3 3. Irruptive stoat populations are always controlled no later than the May of yr 2. 4. 98% kill rate for rodents in all operations. 5. Possum RAI level does not exceed 2% RTC	Go post germination	Mast treatment timing: •Sep-Dec yr 0 (pre seed set) OR • Immediately following beech seed germination yr 1 (December - Feb). Non mast year treatment timing: • Timing as required to achieve average annual tracking rate target	Mast If deltaT for the next year is >0.7 =plan post mast operation Dec-March yr 1. THEN If deltaT prediction in April of year 1 is for a higher magnitude mast in year 2 (masts two years in a row) postpone planned operation for 12 months and inform TAG If deltaT prediction in April of year 1 is for a similar or lesser magnitude mast in year 2 (masts two years in a row) seek TAG advice THEN If deltaT prediction in April of year 1 is >0.7 then wait until May rat tracking rat tracking results to see if predicted levels will exceed 30% 1 Night TTI by Feb of year 2 = trigger post mast operation from Dec of yr 1 and by May yr2. Non mast treatment: Operation triggered if mustelid monitoring survey results from the previous 2 sessions indicate that 10% 21-night tracking rate target will be exceeded within the next 12 months.		update targets, triggers and timing to new perscription	1 1 1	Peraxilla colensoi, Peraxilla tetrapetala, Nestor meridionalis septentrionalis, *Chalinolobus tuberculatus*		#REF!	1	3		39
Hollyford	#REF!	2.Sustained stoat and rat control in upland beech dominated forests using up to two aerial operations per mast	**Stoat, rats,** possums	1 1	2	1.Kea population is increasing when evaluated by call rates from ARDs. 2.The mean count of rock wren on transects increases to >2 per transect and is maintained. 3. Long-tailed Bat population is increasing, evaluated by pass rate trends across ARD surveys. 4. Number of whio pairs on surveyed river sections is increasing. 5. Kaka population is stable or increasing when evaluated by call rates from ARDs.	1. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Possum RAI level does not exceed 2% RTC. 3. Rat 1-night tracking index does not exceed 30%. 4.Rat 21-night tracking does not exceed 5% in rock wren habitat. 5. Annual-average 1-night rat tracking level is less than 10%.		Mast treatment timings: Rat irruption predicted (year zero rat abundance plus mast prediction): • Sep-Dec (pre seed set) AND SUBJECT TO RAT ABUNDANCE LEVELS: • Feb-March (16 months later following seed germination) Non mast year treatment timing: • Timing as required to achieve average annual tracking rate target.	Mast: Year 0: Delta T for following year >0.7 and rat presence in August is primed for levels to breach 30% 1 Night TTI target before Nov of year 1 = Sep-Dec pre seed set operation. THEN Year 1-2: If 1-night rat tracking in May is >5% assess (model growth rate relative to 30% 1-night TTI target, and 10% non mast target), confirm and plan for post mast operation from Feb-March of yr 2. Confim post gemination operation based on actual tracking rate in November. Non mast (including mast years 0 &2): Operation triggered if monitoring survey results indicate that mustelid or rat result targets (of not exceeding 10% 21 night tracking rate for more than one consecutive summer/average 1-night tracking rate of no greater than 10%) will be exceeded.			1 1 1 1 1 1 1 1	Peraxilla colensoi, Hymenolaimus malacorhynchos, Petroica australis australis, Xenicus gilviventris, Hemiphaga novaeseelandiae, Nestor meridionalis meridionalis, Nestor notabilis, Chalinolobus tuberculatus		#REF!	2	3	0.333333333	57
Hope Cascade	#REF!	7. Possum control with pulsed stoat and rat control, in all masting forests using an aerial operation every 6 years.	**Stoats, possums,** rats	1 1 1 1	4	1. Kiwi population is stable or increasing as indicated by call rate trends across call count or ARD surveys. 2. Misletoe populations are stable or increasing as indicated by: Foliage cover is >50%; <5% of plants have any possum browse; recruitment plots measure new plants at a rate that exceeds or equals the loss rate of tagged plants.	1.Mustelid 21-night tracking index level does not exceed 10% in the period Sept-June for 2 years in 4. 2. Possum RAI level does not exceed 2% RTC. 3.Rat 1-night tracking index below 5% for the period November-January, 1 year in 4 (4 yearly, aerial treatment year).		July-September	At return year (6 yearly) as per timing (July-Sep) if delta T ≤ 0.5. If deltaT >0.5, consult TAG.		Should these sites be treated more often (District wants 3 yearly) due to reinvasion pressure from possums, or should the block be designed to achieve targets based on 6 year return time. eg ground control or larger blocks? Should Tawaki be a key species, if so this is THE key site? is this block not actually just a possum job?	1 1 1 1 1	Alepis flavida, Peraxilla colensoi, Peraxilla tetrapetala, Botaurus poiciloptilus, Hymenolaimus malacorhynchos, Nestor meridionalis meridionalis, Nestor notabilis, Apteryx australis \\Haast\\, Eudyptes pachyrhynchus		#REF!	7	6		65
Hump Ridge		Not priortised			0								1	Powelliphanta spedeni lateumbilicata		#REF!		6		262
Hutiwai Stream	#REF!	4.Sustained stoat and pulsed rat control in diverse masting forests using an aerial operation every 3 years	**Possums, rats, stoats**	1	1	1.Possum vulnerable tree species (including ...) dieback levels and canopy cover maintenance is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods. 2. The ST bat population is increasing, measured by roost emergence counts or pass rate trends across ARD surveys. 3.Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 4. Long-tailed Bat population is increasing, evaluated by pass rate trends across ARD surveys.	1.Possum RAI level does not exceed 5% RTC. 2. Mustelid 21-night tracking index level does not exceed 10% in the period Sept-June, for 2 years in 3. 3.Rat 1-night tracking index below 5% for the period November-February 1 year in 3 (3 yearly, aerial treatment year)		June-October	At return year (5 yearly) as per timing (June-October) if delta T ≤ 0.5. If delta T > 0.5, consult TAG			1 1 1	Apteryx mantelli, Chalinolobus tuberculatus, Mystacina tuberculata rhyacobia		#REF!	4	3		91
Huxley Hopkins	#REF!	Not priortised			0								1 1	Xenicus gilviventris, Nestor notabilis		#REF!		4		174
Isolated Hill	#REF!	7. Possum control with pulsed stoat and rat control, in all masting forests using an aerial operation every 6 years.	**Possums**	1	1	1. Possum vulnerable plant species survival and regeneration is not being impacted by possum browse levels.	1. Possum RAI level does not exceed 4% RTC		May-September	At return year (6 yearly) as per timing (July-October) if delta T ≤ 0.5. If delta T > 0.5, consult TAG			1	Carmichaelia astonii, Tupeia antarctica, Pachycladon fasciarium, Rhytida stephenensis, Wainuia nasuta		#REF!	7	6		140
Kaikoura Ranges	South Marlborogh	To be determined	Stoats, feral cats, weasels, ferrets, possums, mice, rats	1		1. Hutton's shearwater are not limited by invasive mammals at both Kowhai River and Shearwater Stream colonies. 2. Bluff weta numbers and distribution are increasing (survey method to be determined). 3. Spotted skink numbers and distribution are increasing (survey method to be determined). 4. Black fronted tern numbers are not limited by invasive mammals (census counts and nest survival monitoring).	1. Feral cats and ferrets are not detected on trail camera surveys at the shearwater colonies and black-fronted tern colonies during their breeding seasons. 2. Stoat and weasel detection rates on trail camera surveys across the broader landscape does not exceed 2 detections per 100 camera nights. 3. Mouse and rat tracking does not exceed 5% within 500m of specified key breeding habitats of Bluff weta and Spotted skink.		Aerial treatment requirements are uncertain and need detailed investigation and consideration with treaty partner and key stakeholders.		Interim ground control of invasive carnivores at shearwater and tern colonies using traps and/or poisons over c.300 ha at four-five nodes. Ground based or aerial poison baiting of mice (and rats if present, but unlikely most of the time) during chionochloa triggered mouse irruptions and possibly other key times triggered by rodent tracking rates.	Issues to resolve include 1. Preparation of an outcome plan, in partnership with Ngati Kuri, to determine block boundaries, skink and weta stronghold locations, and potential mixtures of mammal control tools. 2. registration of aerial carnivore meat bait for large-scale control of stoats, cats, ferrets and weasels, if identified in plan as important/desired. 3. Determination of secondary poisoning effectiveness from cereal 1080 pellets in this landscape, particularly via rabbits and mice, if identified in outcome plan as important/desired. 4. Mitigation of any non-target poisoning risk to the last few kea in the Kaikouras (recognizing kea will go extinct without landscape scale invasive carnivore control).		Puffinus huttoni, Chlidonias albostriatus, Deinacrida elegans, Oligosoma elium	Huttons shearwater, Black fronted tern, Bluff weta, Spotted Skink					
Kaimanawa Mountains - Umukarikari	#REF!	on hold		1 1 1	3	4. Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys.							1 1 1 1 1	Peraxilla colensoi, Peraxilla tetrapetala, Tupeia antarctica, Hymenolaimus malacorhynchos, Nestor meridionalis septentrionalis, Naultinus punctatus, Cyanoramphus auriceps		#REF!		3		35
Karioi	#REF!	Not priortised			0								1 1 1	Hemiphaga novaeseelandiae, Nestor meridionalis septentrionalis, Chalinolobus tuberculatus		#REF!		3		86
Kaweka Forest Park	#REF!	on hold		1 1	2								1 1 1 1 1 1 1	Peraxilla tetrapetala, Apteryx mantelli, Hymenolaimus malacorhynchos, Nestor meridionalis septentrionalis, Powelliphanta marchanti, Chalinolobus tuberculatus, Oligosoma microlepis		#REF!		3		184
Kawhatau	#REF!	Not priortised			0								1 1 1 1 1	Pittosporum turneri, Apteryx mantelli, Hymenolaimus malacorhynchos, Nestor meridionalis septentrionalis, Powelliphanta marchanti, Chalinolobus tuberculatus		#REF!		3		125
Kepler	#REF!	Not priortised		1 1	2								1 1 1 1 1	Alepis flavida, Hymenolaimus malacorhynchos, Xenicus gilviventris, Nestor notabilis, Chalinolobus tuberculatus, Apteryx australis 'northern Fiordland'		#REF!		4		54
Kowhai	South Marlborogh	Not priortised												Tupeia antarctica, Puffinus huttoni, Nestor notabilis, Mokopirirakau kahutarae, Naultinus rudis, Oligosoma elium		#REF!		3		265
Landsborough	South Westland	2.5.Sustained stoat and rat control in beech dominated forests where red beech is absent using up to two aerial operation per mast	**Rats, stoats, possums**	1 1 1	3	1.The mohua population is stable or increasing as indicated by trends across surveys in the mean number of mohua groups per km detected on transects and by call rates trends across ADR surveys. 2.Mistletoe Foliage cover for uncaged monitored plants is > 50%; <5% of plants have any possum browse 3. Long-tailed Bat abundance is increasing, evaluated by pass rate trends across ARD surveys.	1. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Irruptive stoat populations are always controlled to low levels in the 1st quarter of yr 2. 3. Rat 1-night tracking index never exceeds 30% 4. Annual-average 1-night rat tracking level is less than 10%. 5. Possum RAI level does not exceed 2% RTC.		Mast treatment timing: •Light mast and magnitude rodent irruption potential:Immediately following beech seed germination yr 1 (Nov-Feb). •Medium or higher magnitude rodent irruption potential: Oct-Dec yr 0 (pre beech flowering, pre seed set) AND THEN IF REQUIRED •Post mast (Jan-March yr 2). Non mast year treatment timing: • Timing as required to achieve average annual tracking rate targets for rats and stoats OR to ensure time between aerial treatment (mustelid control) does not exceed 3 years.	Mast treatment: •If deltaT for the next year is 0.5 to 1.2 or 200-1000 seeds/m2 AND May 1-night (year 0) rat tracking is <5% = trigger post mast operation (from immediately following seed germination in yr 1, Nov-Feb). •If deltaT for the next year is 0.5 to 1.2 or 200-1000 seeds/m2 AND May 1-night (year 0) rat tracking is ≥5% = trigger pre mast operation (Oct-Dec yr 0). AND Plan post mast operation, ask TAG advice for triggering post-mast operation •If deltaT for the next year is >1.2 to 2.0 or 1000-1500 Seeds/M^2 = trigger pre mast operation (October-Dec yr 0) AND Plan post mast operation, ask TAG advice for triggering post-mast operation •If deltaT for the next year is >2.0 or >1500 Seeds/M^2 = trigger pre mast operation (October-Dec yr 0) AND Plan post mast operation. Trigger post mast operation if yr 1 May 1 night rat tracking is≥5%. Ask for TAG advice for triggering post-mast operation if MAy 1 night tracking is <5%. Non mast treatment: Operation triggered if •Mustelid monitoring survey results indicate that mustelid or rat result targets (of not exceeding 10% 21 night tracking rate for more than one consecutive summer/average 1-night tracking rate of no greater than 10%) will be exceeded. OR Interval since last control operation has reached 3 years			1 1 1 1 1 1	Peraxilla colensoi, Peraxilla tetrapetala, Xenicus gilviventris, Mohoua ochrocephala, Nestor notabilis, Powelliphanta rossiana \\Haast\\, Chalinolobus tuberculatus		#REF!	2.5	3	0.1	66
Lower Hollyford	#REF!	Not priortised			0								1	Nestor notabilis		#REF!				55
Lower Pelorus	#REF!	Not priortised		1	1								1 1 1 1 1	Peraxilla tetrapetala, Nestor notabilis, Powelliphanta hochstetteri consobrina, Chalinolobus tuberculatus, Mokopirirakau granulatus		#REF!		3		142
MacLennan Range	#REF!	Not priortised			0									Bowdleria punctata punctata, Mokopirirakau \\southern forest\\		#REF!		3		226
Makarora-Wilkin	Wanaka	2.5.Sustained stoat and rat control in beech dominated forests where red beech is absent using up to two aerial operation per mast	**Stoats, rats,** possums	1	1	1. The rock wren population is increasing as indicated by trends in the number of birds per km of transect across surveys 2.The mohua population is increasing as indicated by trends across surveys in the mean number of mohua groups per km detected on transects and by call rates trends across ARD surveys. 3. Kea population is increasing when evaluated by trends in call rates across ARD surveys.	1. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Irruptive stoat populations are always controlled to low levels in the 1st quarter of yr 2. 3. Rat 1-night tracking index never exceeds 30% 4. Annual-average 1-night rat tracking level is less than 10%. 5. Possum RAI level does not exceed 2% RTC.		Mast treatment timing: •Light mast and magnitude rodent irruption potential:Immediately following beech seed germination yr 1 (Nov-Feb). •Medium or higher magnitude rodent irruption potential: Oct-Dec yr 0 (pre beech flowering, pre seed set) AND THEN IF REQUIRED •Post mast (Jan-March yr 2). Non mast year treatment timing: • Timing as required to achieve average annual tracking rate targets for rats and stoats OR to ensure time between aerial treatment (mustelid control) does not exceed 3 years.	Mast treatment: •If deltaT for the next year is 0.5 to 1.2 or 200-1000 seeds/m2 AND May 1-night (year 0) rat tracking is <5% = trigger post mast operation (from immediately following seed germination in yr 1, Nov-Feb). •If deltaT for the next year is 0.5 to 1.2 or 200-1000 seeds/m2 AND May 1-night (year 0) rat tracking is ≥5% = trigger pre mast operation (Oct-Dec yr 0). AND Plan post mast operation, ask TAG advice for triggering post-mast operation •If deltaT for the next year is >1.2 to 2.0 or 1000-1500 Seeds/M^2 = trigger pre mast operation (October-Dec yr 0) AND Plan post mast operation, ask TAG advice for triggering post-mast operation •If deltaT for the next year is >2.0 or >1500 Seeds/M^2 = trigger pre mast operation (October-Dec yr 0) AND Plan post mast operation. Trigger post mast operation if yr 1 May 1 night rat tracking is≥5%. Ask for TAG advice for triggering post-mast operation if MAy 1 night tracking is <5%. Non mast treatment: Operation triggered if •Mustelid monitoring survey results indicate that mustelid or rat result targets (of not exceeding 10% 21 night tracking rate for more than one consecutive summer/average 1-night tracking rate of no greater than 10%) will be exceeded. OR Interval since last control operation has reached 3 years			1 1 1 1 1 1 1	Alepis flavida, Peraxilla colensoi, Peraxilla tetrapetala, Hymenolaimus malacorhynchos, Xenicus gilviventris, Mohoua ochrocephala, Nestor meridionalis meridionalis, Nestor notabilis, Chalinolobus tuberculatus		#REF!	2.5	3	0.4	45
Mangatawhiri-Vinings	#REF!	Delivered externally			0								1	Chalinolobus tuberculatus		#REF!		3		6

Mapara	#REF!	3.Sustained stoat and rat control in diverse masting NI forests using an aerial operation every 3 years and annual ground control	**Rats, possums**, stoats	1	1	1.The number of kokako pairs is increasing or remains stable.	Overall site (aerial treatment block) 1. Rat 1-night tracking index below 5% for the period November-February 1 year in 3 (3 yearly, aerial treatment year) 2. Possum RAI level does not exceed 5% RTC. Ground treatment block (proposed): 1. Rat 1-night tracking index below 5% for the period November-February in all years.		August-October	At return year (3 yearly) as per timing (August-Oct) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Ground treatment plan has ceased in recent years. Plans underway to undertake seasonal rat control with ground methods, self resetting traps or pesticides in bait stations over the entire 1500 ha.		1 1	Callaeas wilsoni, Chalinolobus tuberculatus	#REF!	3	3	14
Mataitai Forest	#REF!	Not priortised			0									Chalinolobus tuberculatus	#REF!		3	41
Matawai-Rakauroa	#REF!	Not priortised			0								1 1 1	Apteryx mantelli, Chalinolobus tuberculatus, Leiopelma hochstetteri	#REF!		3	137
Matemateaonga-Waitotara	#REF!	6.Sustained possum control with pulsed rat and stoat control in diverse masting NI forests using an aerial operation every 4 years	**Stoats, possums,** rats	1	1	1. Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 2. Number of whio pairs on surveyed river sections is increasing. 3. Long-tailed Bat population is increasing, evaluated by pass rate trends across ARD surveys. 4. Kaka population is increasing, evaluated by call rates from ARDs and/or other abundance monitoring measures. 5. Possum vulnerable tree species (including totara, rata, kamahi) dieback levels and canopy cover maintenence is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods.	1.Mustelid 21-night tracking index level does not exceed 10% in the period Sep-June for 2 years in 4. 2.Rat 1-night tracking index below 5% for the period November-January, 1 year in 4 (4 yearly, aerial treatment year). 3. Possum RAI level does not exceed 5% RTC.		July-September	At return year (4 yearly) as per timing (July-Sep) if delta T ≤ 0.5. If delta T > 0.5, consult TAG			1 1 1 1 1	Apteryx mantelli, Hymenolaimus malacorhynchos, Nestor meridionalis septentrionalis, Chalinolobus tuberculatus, Mystacina tuberculata rhyacobia	#REF!	6	4	36
Matiri	Nelson Lakes	1.Sustained stoat and pulsed rat control in upland beech dominated forests using a single aerial operation per mast	**Stoats,** rats, **possums**	1	1	1. Live *Powelliphanta* density in repeat measured plots is increasing. 2. Number of whio pairs on suveyed river sections is increasing. 3. Long-tailed Bat abundance is increasing, evaluated by pass rate trends across ARD surveys.	1. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Mustelid 21-night tracking does not exceed (<5% 21 night TTI) in the 1st quarter of yr 3 3. Irruptive stoat populations are always controlled no later than the May of yr 2. 4. 98% kill rate for rodents in all operations. 5. Possum RAI level does not exceed 2% RTC	Retain 'nip it in bud' timing	Mast treatment timing: •Sept-Dec yr 0 (pre seed set) OR • Immediately following beech seed germination yr 1 (December - Feb). Non mast year treatment timing: • Timing as required to achieve average annual tracking rate target	Mast treatment: •If deltaT for the next year is >0.7 = trigger pre mast operation •If pre-mast operation was not done but rat tracking levels reach 30% 1 Night TTI target by Nov of year 1 = trigger post mast operation. Non mast treatment: Operation triggered if mustelid monitoring survey results from the previous 2 sessions indicate that 10% 21-night tracking rate target will be exceeded within the next 12 months.		update targets, triggers and timing to new perscription.	1 1 1 1	Chalinolobus tuberculatus, Hymenolaimus malacorhynchos, Melicytus (a) (CHR 355077; Matiri Range), Nestor meridionalis meridionalis, Nestor notabilis, Petroica australis australis, Pittosporum patulum, Powelliphanta lignaria unicolorata	#REF!	1	3	273
Moehau	#REF!	4.Sustained stoat and pulsed rat control in diverse masting forests using an aerial operation every 3 years	**Stoats, rats, possums**	1 1 1	3	1. Kiwi population is stable or increasing as indicated by call rate trends across call count or ARD surveys. 2. The Archey's Frog population is increasing, as determined by trends across mark recapture plot abundance estimates. 3. The Hochstetters Frog population is increasing, as determined by trends across site occupancy surveys. 4. Possum vulnerable tree species (including kohekohe, rata) dieback levels and canopy cover maintenence is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods.	Aerial treatment block targets: 1.Mustelid 21- night tracking index level does not exceed 10% in the period Sept-June, 1 year in 3. 2. Rat 1-night tracking index below 5% for the period Sept-Feb, 1 year in 3 (aerial treatment year). 3. Possum RAI level does not exceed 5% RTC. Ground treatment (stoat control) block target: 1. Mustelid 21-night tracking index level does not exceed 10% for the period Sept-June, in all years. ~~Ground treatment (rat control for frog protection) block targets:~~ ~~2. Rat TTI is maintained below 10% TTI year round in all years.~~		July -September	At return year (3 yearly) as per timing (July-Sep) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Stoat trapping network over entire aerial treatment area to provide protection to kiwi population. Feral cat control to protect Brown teal. Rat control for frog protection - requires ground based treatment? Rat TTI is maintained below 10% TTI year round in all years. How feasible?	1/08/2024. Nick Poutu. Agreed that ground based rat control in frog habitat will be not be implemented (by NPCP) at this site. It would be advisable to undertake frog monitoring (and rodent TTI) in treatment (3 yearly 1080) and non-treatment frog habitat sites.	1 1 1 1 1	Apteryx mantelli, Hemiphaga novaeseelandiae, Nestor meridionalis septentrionalis, Leiopelma archeyi, Leiopelma hochstetteri, Anas chlorotis	#REF!	4	3	50
Mokaihaha	#REF!	3.Sustained stoat and rat control in diverse masting NI forests using an aerial operation every 3 years and annual ground control	**Rats, possums, stoats**	1 1	2	1.The number of kokako pairs is increasing. 2. Kaka population is r increasing when evaluated by call rates from ARDs and/or other abundance monitoring measures.	Overall site: 1. Rat 1-night tracking index below 5% for the period November-February 1 year in 3 (3 yearly, aerial treatment year). 2. Possum RAI level does not exceed 5% RTC. 3.Mustelid 21-night tracking in summer does not exceed 10% for 1 year in 3. Ground treatment block: 1. Rat 1-night tracking index below 5% for the period November-February in all years. 2. Possum RAI level is below 5% RTC for the period Nov-February in all years. 3.Mustelid 21-night tracking in summer does not exceed 10%.		August-October	At return year (3 yearly) as per timing (August-Oct) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Rat and possum control area of ~800 recently increased to the entire 2000 ha aerial treatment area. Pesticides in bait stations annually in non-aerial 1080 treatment years.	Kaka listed as a key species. Requires stoat result targets. Small block size will make achievment suppession through aerial treatmnet short-lived. What is the current level of ground based stoat control?	1 1 1	Callaeas wilsoni, Nestor meridionalis septentrionalis, Chalinolobus tuberculatus	#REF!	3	3	12
Mokihinui Karamea	Buller	1.Sustained stoat and pulsed rat control in upland beech dominated forests using a single aerial operation per mast	**Stoats,** rats, **possums**	4	4	1. Live *Powelliphanta* density in repeat measured plots is increasing. 2. Number of whio pairs on suveyed river sections is increasing. 3. Long-tailed Bat abundance is increasing, evaluated by pass rate trends across ARD surveys.	1. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Mustelid 21-night tracking does not exceed (<5% 21 night TTI) in the 1st quarter of yr 3 3. Irruptive stoat populations are always controlled no later than the May of yr 2. 4. 98% kill rate for rodents in all operations. 5. Possum RAI level does not exceed 2% RTC	Retain 'nip it in bud' timing	Mast treatment timing: •Sept-Dec yr 0 (pre seed set) OR • Immediately following beech seed germination yr 1 (December - Feb). Non mast year treatment timing: • Timing as required to achieve average annual tracking rate target	Mast treatment: •If deltaT for the next year is >0.7 = trigger pre mast operation •If pre-mast operation was not done but rat tracking levels reach 30% 1 Night TTI target by Nov of year 1 = trigger post mast operation. Non mast treatment: Operation triggered if mustelid monitoring survey results from the previous 2 sessions indicate that 10% 21-night tracking rate target will be exceeded within the next 12 months.		update targets, triggers and timing to new perscription.Also update species lists for new blocks		Bowdleria punctata punctata, Chalinolobus tuberculatus, Hymenolaimus malacorhynchos, Nestor meridionalis meridionalis, Nestor notabilis, Petroica australis australis, Hymenolaimus malacorhynchos, Nestor notabilis, Melicytus (a) (CHR 355077; Matiri Range), Powelliphanta lignaria lignaria, Powelliphanta lignaria lusca, Powelliphanta lignaria ruforadiata, Powelliphanta lignaria unicolorata, Peraxilla tetrapetala, Chalinolobus tuberculatus	#REF!	1	3	272
Moki-Makino	#REF!	Not priortised			0								1 1	Apteryx mantelli, Chalinolobus tuberculatus	#REF!		3	8
Mount Anglem	#REF!	Not priortised			0									Apteryx australis australis	#REF!		3	179
Mt Stokes	#REF!	Not priortised		1	1								1 1	Peraxilla colensoi, Powelliphanta hochstetteri bicolor	#REF!		6	246
Murchison Mountains	#REF!	Not priortised	**Rats, stoats, possums**	1	1	1. The ST bat population is increasing, measured by roost emergence count surveys.	Aerial treatment area: 1.Rat 1-night tracking index never exceeds 30% . 2.Annual-average 1-night rat tracking level is less than 10%. 3.Mustelid 21-night tracking is <10% in half of all summers across the site. 4.Possum RAI level does not exceed 2% RTC.		Mast treatment timings: Rat irruption predicted (year zero rat abundance plus mast prediction): • Nov-Dec pre-seedfall AND SUBJECT TO RAT ABUNDANCE LEVELS: • Feb-March (16 months later following seed germination) Non mast year treatment timing: • Timing as required to achieve average annual tracking rate target.	Mast: Year 0: Delta T for following year >0.7 and rat presence in August is primed for levels to breach 30% 1 Night TTI target before Nov of year 1 = Nov-Dec pre seedfall operation. THEN Year 1-2: If 1-night rat tracking in May is >5% assess (model growth rate relative to 30% 1-night TTI target, and 10% non mast target), confirm and plan for post mast operation from Feb-March of yr 2. Confim post gemination operation based on actual tracking rate in November. Non mast (including mast years 0 &2): Operation triggered if rat monitoring survey results from the previous 2 sessions indicate that 10% annual average 1-night tracking rate target will be exceeded within the next 12 months.	Extensive stoat trapping netwo	**Can the operation be done to exclude takahae habitat (above treeline) and targets?**	1 1 1 1 1 1 1 1 1 1	Alepis flavida, Peraxilla colensoi, Peraxilla tetrapetala, Hymenolaimus malacorhynchos, Xenicus gilviventris, Mohoua ochrocephala, Porphyrio hochstetteri, Nestor meridionalis meridionalis, Nestor notabilis, Chalinolobus tuberculatus, Mystacina tuberculata tuberculata, Apteryx australis 'northern Fiordland'	#REF!		4	109
Murchison Mountains ground	#REF!			1 1	2								1 1 1 1 1 1 1 1 1	Alepis flavida, Peraxilla colensoi, Peraxilla tetrapetala, Hymenolaimus malacorhynchos, Xenicus gilviventris, Mohoua ochrocephala, Porphyrio hochstetteri, Nestor meridionalis meridionalis, Nestor notabilis, Chalinolobus tuberculatus, Mystacina tuberculata tuberculata, Apteryx australis 'northern Fiordland'	#REF!			166
New Creek	#REF!	1.Sustained stoat and pulsed rat control in upland beech dominated forests using a single aerial operation per mast	**Stoats,** rats, **possums**	1 2	3	1. Great spotted kiwi population is increasing as indicated by call rate trends across ARD surveys. 2. Live *Powelliphanta* density in repeat measured plots is increasing. 3. Long-tailed Bat abundance is increasing, evaluated by pass rate trends across ARD surveys.	1. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Mustelid 21-night tracking does not exceed (<5% 21 night TTI) in the 1st quarter of yr 3 3. Irruptive stoat populations are always controlled no later than the May of yr 2. 4. 98% kill rate for rodents in all operations. 5. Possum RAI level does not exceed 2% RTC	Retain 'nip it in bud' timing	Mast treatment timing: •Sept-Dec yr 0 (pre seed set) OR • Immediately following beech seed germination yr 1 (December - Feb). Non mast year treatment timing: • Timing as required to achieve average annual tracking rate target	Mast treatment: •If deltaT for the next year is >0.7 = trigger pre mast operation •If pre-mast operation was not done but rat tracking levels reach 30% 1 Night TTI target by Nov of year 1 = trigger post mast operation. Non mast treatment: Operation triggered if mustelid monitoring survey results from the previous 2 sessions indicate that 10% 21-night tracking rate target will be exceeded within the next 12 months.		update targets, triggers and timing to new perscription.	1 1 1 1	Apteryx haastii, Bowdleria punctata punctata, Chalinolobus tuberculatus, Hymenolaimus malacorhynchos, Mokopirirakau granulatus, Naultinus stellatus, Naultinus tuberculatus, Nestor meridionalis meridionalis, Nestor notabilis, Oligosoma newmani, Petroica australis australis, Powelliphanta augusta, Powelliphanta lignaria johnstoni, Powelliphanta lignaria rotella, Powelliphanta patrickensis	#REF!	1	3	260
Ngatukituki Forest Sanctuary, Te Aroha, Te Hunga Ecological Area	#REF!	Not priortised			0								1 1	Mokopirirakau granulatus, Leiopelma hochstetteri	#REF!		3	148
Nina (Te Maruia)	#REF!	Not priortised			0								1 1 1	Apteryx haastii, Nestor notabilis, Chalinolobus tuberculatus	#REF!		4	192
Northern Ruahine	#REF!	1.Sustained stoat and pulsed rat control in upland beech dominated forests using a single aerial operation per mast	**Stoats, rats, possums**	1	1	1. Live *Powelliphanta* density in repeat measured plots is increasing. 2. *Pittosporum turneri*, survival and regeneration is not being impacted by possum browse levels. 3.Number of whio pairs on surveyed river sections is increasing. 4.The kiwi population is increasing as indicated by call rate trends across call count or ARD surveys.	1. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Mustelid 21-night tracking does not exceed (<5% 21 night TTI) in the 1st quarter of yr 3 3. Irruptive stoat populations are always controlled no later than the May of yr 2. 4. 98% kill rate for rodents in all operations. 5. Possum RAI level does not exceed 2% RTC	Go post germination	Mast treatment timing: •Sept-Dec yr 0 (pre seed set) OR • Immediately following beech seed germination yr 1 (December - Feb). Non mast year treatment timing: • Timing as required to achieve average annual tracking rate target	Mast If deltaT for the next year is >0.7 =plan post mast operation Dec-March yr 1. THEN If deltaT prediction in April of year 1 is for a higher magnitude mast in year 2 (masts two years in a row) postpone planned operation for 12 months and inform TAG If deltaT prediction in April of year 1 is for a similar or lesser magnitude mast in year 2 (masts two years in a row) seek TAG advice THEN If deltaT prediction in April of year 1 is >0.7 then wait until May rat tracking results to see if predicted levels will exceed 30% 1 Night TTI by Feb of year 2 = trigger post mast operation from Dec of yr 1 and by May yr2. Non mast treatment: Operation triggered if mustelid monitoring survey results from the previous 2 sessions indicate that 10% 21-night tracking rate target will be exceeded within the next 12 months.	Mustelid control over ?, ridgeline and river coverage - focussed on whio protection, but expanding to attempt landscape control for kiwi recovery. Kiwi translocation site?	What is the correct prescription for this site and values. Should it be mast1 timed or a possum job? update targets, triggers and timing to new perscription	1 1 1 1 1	Pittosporum turneri, Apteryx mantelli, Hymenolaimus malacorhynchos, Nestor meridionalis septentrionalis, Powelliphanta marchanti, *Chalinolobus tuberculatus*	#REF!	1	3	85
Okarito	South Westland	Not priortised												Apteryx rowi, Nestor notabilis, Chalinolobus tuberculatus	#REF!		3	69
Omahuta-Puketi	#REF!	3.Sustained stoat and rat control in diverse masting NI forests using an aerial operation every 3 years and annual ground control	**Rats, stoats**, possums	1 1 1	3	1. The ST bat population is increasing, evaluated by roost emergence counts and/or pass rate trends across ARD surveys. 2.Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 3. The number of kokako pairs is increasing	Aerial treatment block (whole area) 1. Mustelid 21-night tracking index level does not exceed 10% in the period Sept-June, for 2 years in 3 2. Rat 1-night tracking index below 5% for the period November-February for at least 1 year in 3 (3-yearly, aerial treatment year). 3.Possum RAI level does not exceed 5% RTC. ST bat protection area (4000, ha) 1.Mustelid 21-night tracking index level does not exceed 10% Kiwi and kokako core area Puketi Forest Trust (5,500 ha (800 ha core kokako area within this)) 1.Mustelid 21-night tracking index level does not exceed 10%. 2. Rat 1-night tracking index below 5% for the period November-February in all years in core kokako area.		August-October	At return year (3 yearly) as per timing (August-Oct) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	ST bat roosting areas block: 4000 ha of stoat and cat control by trapping Puketi Forest Trust Kiwi protection block, encompassing kokako core area: 5500 ha of stoat and cat control; 800 ha of rat control	Uncertain if 3-yearly rat suppression interval (via aerial 1080 op cycle) is sufficent for ST bat protection. ST bat protection area currently has stoat and cat control. Ground based rat control to constantly/annually suppress rats to low target levels over bat protection area area would be very expensive and logistically difficult.	1 1 1 1 1	Dactylanthus taylorii, Apteryx mantelli, Hemiphaga novaeseelandiae, Amborhytida dunniae, Amborhytida forsythi, Paryphanta busbyi busbyi, Chalinolobus tuberculatus, Mystacina tuberculata aupourica, Callaeas wilsoni	#REF!	3	3	118
Opuiaki	#REF!	Not priortised		1	1								1 1	Callaeas wilsoni, Nestor meridionalis septentrionalis	#REF!		3	149
Otahu Ecological Area	#REF!	4.Sustained stoat and pulsed rat control in diverse masting forests using an aerial operation every 3 years	**Rats,** possums, stoats	1 1	2	1. The Archey's Frog population is increasing, as determined by trends across mark recapture plot abundance estimates. 2. The Hochstetters Frog population is increasing, as determined by trends across site occupancy surveys. 3. Possum vulnerable tree species (including kohekohe, rata) dieback levels and canopy cover maintenence is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods. 4.Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys.	Aerial treatment block targets: 1. Rat 1-night tracking index below 5% for the period Sept-Feb, 1 year in 3 (aerial treatment year). 2. Possum RAI level does not exceed 5% RTC. 3. Mustelid 21- night tracking index level does not exceed 10% in the period Sept-June, 1 year in 3 ~~Ground treatment (rat control in frog area) block targets:~~ ~~1. Rat TTI is maintained below 10% TTI year round in all years.~~		July-September	At return year (3 yearly) as per timing (July-Sep) if delta T ≤ 0.5. If delta T > 0.5, consult TAG		1/08/2024. Nick Poutu. Agreed that ground based rat control in frog habitat will be not be implemented (by NPCP) at this site. It would be advisable to undertake frog monitoring (and rodent TTI) in treatment (3 yearly 1080) and non-treatment frog habitat sites.	1 1 1	Apteryx mantelli, Hemiphaga novaeseelandiae, Leiopelma archeyi, Leiopelma hochstetteri	#REF!	4	3	42

Pakawau-Puponga	#REF!	7. Possum control with pulsed stoat and rat control, in all masting forests using an aerial operation every 6 years.	**Possums**	1	1	1. Live *Powelliphanta* density in repeat measured plots is increasing. 2. Possum vulnerable tree species (including ?) dieback levels and canopy cover maintenence is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods.	1. Possum RAI level does not exceed 10% RTC		July-October.	At return year (6 yearly) as per timing (July-October) if delta T ≤ 0.5. If delta T > 0.5, consult TAG			1 1 1	Powelliphanta gilliesi subfusca, Nestor meridionalis meridionalis, Petroica australis australis, Libocedrus plumosa, Metrosideros robusta, Phyllocladus trichomanoides	#REF!	7	6		101
Papakai Ecological Area	#REF!	4.Sustained stoat and pulsed rat control in diverse masting forests using an aerial operation every 3 years	**Stoats, rats,** possums	1 1 1	3	1. Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 2. The Archey's Frog population is increasing, as determined by trends across mark recapture plot abundance estimates. 3. The Hochstetters Frog population is increasing, as determined by trends across site occupancy surveys. 4. Possum vulnerable tree species (including kohekohe, rata) dieback levels and canopy cover maintenence is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods.	Aerial treatment block targets: 1.Mustelid 21- night tracking index level does not exceed 10% in the period Sept-June, 1 year in 3 (aerial treatment year). 2. Rat 1-night tracking index below 5% for the period Sept-Feb, 1 year in 3 (aerial treatment year). 3. Possum RAI level does not exceed 5% RTC. ~~Ground treatment (rat control in frog area) block targets:~~ ~~1. Rat TTI is maintained below 10% TTI year round in all years.~~		July-September	At return year (3 yearly) as per timing (July-Sep) if delta T ≤ 0.5. If delta T > 0.5, consult TAG		1/08/2024. Nick Poutu. Agreed that ground based rat control in frog habitat will be not be implemented (by NPCP) at this site. It would be advisable to undertake frog monitoring (and rodent TTI) in treatment (3 yearly 1080) and non-treatment frog habitat sites.	1 1 1 1 1 1	Apteryx mantelli, Hemiphaga novaeseelandiae, Nestor meridionalis septentrionalis, Chalinolobus tuberculatus, Leiopelma archeyi, Leiopelma hochstetteri	#REF!	4	3		87
Parapara	#REF!	1.Sustained stoat and pulsed rat control in upland beech dominated forests using a single aerial operation per mast	**Stoats,** rats, **possums**	3 1	4	1. Live *Powelliphanta* density in repeat measured plots is increasing 2. *Pittosporum patulum* .... 3. Number of whio pairs on suveyed river sections is increasing. 4. Great spotted kiwi population is increasing as indicated by call rate trends across ARD surveys.	1. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Mustelid 21-night tracking does not exceed (<5% 21 night TTI) in the 1st quarter of yr 3 3. Irruptive stoat populations are always controlled no later than the May of yr 2. 4. 98% kill rate for rodents in all operations. 5. Possum RAI level does not exceed 2% RTC	Go post germination	Mast treatment timing: • Immediately following beech seed germination yr 1 (December - Feb). Non mast year treatment timing: • Timing as required to achieve average annual mustelid tracking rate target	Mast If deltaT for the next year is >0.7 =plan post mast operation Dec-March yr 1. THEN If deltaT prediction in April of year 1 is for a higher magnitude mast in year 2 (masts two years in a row) postpone planned operation for 12 months and inform TAG If deltaT prediction in April of year 1 is for a similar or lesser magnitude mast in year 2 (masts two years in a row) seek TAG advice THEN If deltaT prediction in April of year 1 is >0.7 then wait until May rat tracking results to see if predicted levels will exceed 30% 1 Night TTI by Feb of year 2 = trigger post mast operation from Dec of yr 1 and by May yr2. Non mast treatment: Operation triggered if mustelid monitoring survey results from the previous 2 sessions indicate that 10% 21-night tracking rate target will be exceeded within the next 12 months.		update targets, triggers and timing to new perscription.	1	Apteryx haastii, Bowdleria punctata punctata, Chalinolobus tuberculatus, Hymenolaimus malacorhynchos, Melicytus (a) (CHR 355077; Matiri Range), Mokopirirakau granulatus, Nestor meridionalis meridionalis, Nestor notabilis, Peraxilla colensoi, Peraxilla tetrapetala, Petroica australis australis, Pittosporum patulum, Powelliphanta gilliesi compta, Powelliphanta gilliesi fallax, Powelliphanta hochstetteri anatokiensis red form, Powelliphanta hochstetteri anatokiensis yellow form, Powelliphanta hochstetteri hochstetteri brown based, Powelliphanta superba superba, Rhytida oconnori	#REF!	1	3		254
Parininihi	#REF!	3.Sustained stoat and rat control in diverse masting NI forests using an aerial operation every 3 years and annual ground control	**Possums, rats, stoats**		0	1. Possum vulnerable tree species (including ...) dieback levels and canopy cover maintenance is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods. 2.Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 3. Long-tailed Bat population is increasing, evaluated by pass rate trends across ARD surveys. 4. The number of kokako pairs is increasing and reaches ? by ?	Aerial Treatment block: 1.Possum RAI level does not exceed 5% RTC. 2.Rat 1-night tracking index below 5% for the period November-February 1 year in 3 (3 yearly, aerial treatment year) 3. Mustelid 21-night tracking index level does not exceed 10% in the period Sept-June, for 1 year in 3. Ground Control network block: 1. Rat 1-night tracking index below 5% for the period November-February in all years. 2. Mustelid 21-night tracking index level does not exceed 10% for the period Sept-June, in all years. 3. Possum RAI does not exceed 5% for the period Nov-Feb in all years.		August-October	At return year (3 yearly) as per timing (August-Oct) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Rat control and possum control with ground based pesticide application to achieve rat result targets to protect kokako during nesting period.In ~1200 ha of Paraninihi. Mustelid trapping network over Paraninihi and surrounds (Mt Messenger). Possum and feral cat trapping.	**Kokako added to benefit species, should they be listed as a key species? Mustelid result target probably dependednt on continuous ground based suppression methods in block of this size.**	1 1 1	Apteryx mantelli, Chalinolobus tuberculatus, Callaeas wilsoni, Brachyglottis turneri	#REF!	3	3		92
Pihanga-Kakaramea	#REF!	on hold		1	1								1 1 1 1 1	Dactylanthus taylorii, Hemiphaga novaeseelandiae, Nestor meridionalis septentrionalis, Chalinolobus tuberculatus, Mokopirirakau granulatus, Naultinus punctatus	#REF!		3		10
Pirongia and Te Kauri Park	#REF!	7. Possum control with pulsed stoat and rat control, in all masting forests using an aerial operation every 6 years.	**Possums**, rats, stoats	1	1	1. Possum vulnerable tree species (including kohekohe) dieback levels and canopy cover maintenance is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods. 2. Long-tailed Bat pass rate is stable or increasing, evaluated by pass rate trends across ARD surveys.	1. Possum RAI level does not exceed 5% RTC. 2. Rat 1-night tracking index level does not exceed 5% for the period Nov-February for 1 year in 5.		July-October	At return year (6 yearly) as per timing (July-October) if delta T ≤ 0.5. If delta T > 0.5, consult TAG			1 1	Dactylanthus taylorii, Hemiphaga novaeseelandiae, Chalinolobus tuberculatus	#REF!	7	6		49
Port Pegasus	#REF!	Not priortised			0									Apteryx australis australis	#REF!		3		180
Pouiatoa-Taramoukou	#REF!	3.Sustained stoat and rat control in diverse masting NI forests using an aerial operation every 3 years and annual ground control	**Stoats, rats, possums**	1	1	1.Kiwi population in the Pouiatoa block is increasing as indicated by trends across call count or ARD surveys. 2. Possum vulnerable tree species (including kohekohe) dieback levels and canopy cover maintenance is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods. 3. The number of kokako pairs in the Pouiatota block is increasing and reaches ? by ?	Pouiatoa Aerial Treatment block: 1. Mustelid 21-night tracking index level does not exceed 10% in the period Sept-June, for 1 year in 3 (3-yearly, aerial treatment year). 2. Rat 1-night tracking index below 5% for the period November-February 1 year in 5 (5 yearly, aerial treatment year). 3. Possum RAI level does not exceed 10% RTC. Pouiatoa Mustelid Control network block: 1. Mustelid 21-night tracking index level does not exceed 10% for the period Sept-June, in all years. Pouiatoa core kokako block: 1. Rat 1-night tracking index below 5% for the period November-February in all years. 2. Possum RAI level below 5% RTC in the period Nov-Feb in all years. Taramoukou 1. Possum RAI level does not exceed 10% RTC.		August -October	At return year (3 yearly) as per timing (August-October) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Mustelid control by trapping network over the Pouiatoa block by ETET. Rat control with ground based pesticide application and trapping in a 1000 hectare block in southern part of Pouiatoa to achieve rat result targets to protect kokako during nesting period. By ETET	**Kokako added to benefit species, should they be listed as a key species?**	1 1 1	Apteryx mantelli, Chalinolobus tuberculatus, Callaeas wilsoni	#REF!	3	3		94
Princess Range	#REF!	Not priortised			0								1 1 1	Xenicus gilviventris, Mohoua ochrocephala, Nestor notabilis	#REF!		4		201
Pukaha Mt Bruce	#REF!	3.Sustained stoat and rat control in diverse masting NI forests using an aerial operation every 3 years and annual ground control	Stoats, rats, possums		0	1. The kiwi population is stable or increasing as assessed by ....? 2. The number of kokako pairs is increasing and reaches ? by ?	1. Mustelid 21-night tracking index level does not exceed 10% in the period Sept-June. 2. Rat 1-night tracking index below 5% for the period November-February for at least 1 year in 3. 3.Possum RAI level does not exceed 5% RTC.		July-September	At return year (3 yearly) as per timing (August-Oct) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Extensive mustelid trapping network in the aerial treatmnet block and on surrounding land. Ground based pestcides and trapping (?) for rats.		1 1	Apteryx mantelli, Callaeas wilsoni	#REF!	3	3		183
Punakaiki	#REF!	4.Sustained stoat and pulsed rat control in diverse masting forests using an aerial operation every 3 years	**Stoats, rats, possums**	1 1	2	1. Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 3.Number of whio pairs on suveyed river sections is increasing.	Aerial treatment area targets: 1. Mustelid 21-night tracking does not exceed 10% in the period Sep-June for 2 years in 3. 2. Rat 1-night tracking index does not exceed 5% for the period November-February for at least 1 year in 3. 3.Possum RAI level does not exceed 5% RTC.		•July-Sep	At return year (3 yearly) as per timing (July-Sep) if delta T ≤ 0.5. If delta T > 0.5, consult TAG			1 1 1 1	Apteryx haastii, Procellaria westlandica, Hymenolaimus malacorhynchos, Petroica australis australis, Bowdleria punctata punctata, Nestor notabilis, Powelliphanta gagei.	#REF!	4	3		74
Rakeahua	#REF!	Not priortised			0									Hemiphaga novaeseelandiae, Oligosoma notosaurus, Charadrius obscurus obscurus, Apteryx australis australis	#REF!		3		181
Rangataua	#REF!	2.Sustained stoat and rat control in upland beech dominated forests using up to two aerial operations per mast	**Rats, stoats, possums**	1 1 1 1 1	5	1. Kaka population is increasing when evaluated by call rates from ARDs and/or other abundance monitoring measures. 2. The ST bat population is increasing, evaluated by trends accross roost emergence count surveys. 3. Misletoe populations are stable or increasing as indicated by: Foliage cover is >50%; <5% of plants have any possum browse; recruitment plots measure new plants at a rate that exceeds or equals the loss rate of tagged plants. 4. Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys.	Overall (aerial treatment block) targets: 1. Rat 1-night tracking index never exceeds 30% through beech masts. 2. Rat 1-night tracking index does not exceed 5% for the period November-February for at least 1 year in 3. 3.Possum RAI level does not exceed 2% RTC 4.Mustelid 3-night index 0% 2 years in 3. Stoat trapping network area: 1.Mustelid 3-night index 0% year-round		Mast treatment timings: Rat irruption predicted (year zero rat abundance plus mast prediction): • Sep -Dec (pre seed set) AND SUBJECT TO RAT ABUNDANCE LEVELS: • Feb-March (16 months later following seed germination) Non mast year treatment timing: • Timing as required to achieve 1 in 3 year seasonal rat tracking rate target.	Mast: Year 0: Delta T for following year >0.7 and rat presence in August is primed for levels to breach 30% 1 Night TTI target before Nov of year 1 = Sep-Dec pre seed set operation. THEN Year 1-2: If 1-night rat tracking in May is >5% assess (model growth rate relative to 30% 1-night TTI target), confirm and plan for post mast operation from Feb-March of yr 2. Confirm post gemination operation based on actual tracking rate in November. Non mast: At return year (year 3 since mast/plast operation) and rat tracking in May-August indicates that 5% TTI target for Nov-Feb will be exceeded.Proceed if deltaT ≤ 0.5.If delta T > 0.5, consult TAG .	Stoat control by kill trapping over ~7000 ha. This is centred over known bat roost areas in lower Rangataua and adjacent to the Mountain Road. Traps serviced year round. Bait station pesticides for rat and possum control is used to treat a small aerial exclusion block around the Rotokura lakes during aerial 1080 operations.	Check monitoing plan and if targets should be revised. Currently has 3 night tracking mustelid targets.	1 1 1 1 1	Alepis flavida, Peraxilla colensoi, Peraxilla tetrapetala, Apteryx mantelli, Nestor meridionalis septentrionalis, Chalinolobus tuberculatus, Mystacina tuberculata rhyacobia	#REF!	2	3	0.5	25
Rangitoto	#REF!	3.Sustained stoat and rat control in diverse masting NI forests using an aerial operation every 3 years and annual ground control	**Possums, rats, stoats**	1 1 1 1 1	5	1.The number of kokako pairs at Waipapa (and other kokako blocks within the Rangitoto site) is increasing or remains stable while supporting translocations to other sites. 2. Kaka population is increasing, evaluated by call rates from ARDs and/or other abundance monitoring measures. 3. The ST bat population at Pikiariki measured by annual roost counts is stable or increasing. 4. Yellow-crowned parakeet population is increasing, evaluated by call rate trends across ARD surveys. 5. ~~At Pikiariki, *Dactylanthus* seed set occurs in a sample of marked uncaged plants.~~	Rangitoto, overall site: 1. Rat 1-night tracking index below 5% for the period November-February 1 year in 3 (3 yearly, aerial treatment year). 2. Mustelid 21-night tracking in Feb does not exceed 10% 2 years in 3 3. Possum RAI level does not exceed 5% RTC. Waipapa block: 1. Rat 1-night tracking index below 5% for the period November-February in all years. 2. Possum RAI is below 5% RTC for the period Nov-February in all years. Pikiariki block: 1. Rat 1-night tracking index below 5% for the period November-February in all years. 2. Possum RAI is below 2% RTC for the period Nov-February in all years. 3.Mustelid 21-night tracking index level does not exceed 10% for the period Nov-February in all years		August-October	At return year (3 yearly) as per timing (August-Oct) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Pikiariki to be included with Rangitoto aerial treatment. Ground: Waiapapa:Bait station pesticides annually to achieve rat result target in seasons without aerial treatment. Pikariki: Bait station pesticides and trapping) to achieve rat result target in seasons without aerial treatment.		1 1 1 1 1 1 1 1	Dactylanthus taylorii, Melicytus flexuosus, Callaeas wilsoni, Hemiphaga novaeseelandiae, Nestor meridionalis septentrionalis, Chalinolobus tuberculatus, Leiopelma hochstetteri, Mystacina tuberculata rhyacobia, Cyanoramphus auriceps	#REF!	3	3		219
Raukumara FP	#REF!	Delivered externally		1	1								1 1 1 1 1 1	Peraxilla tetrapetala, Apteryx mantelli, Hymenolaimus malacorhynchos, Nestor meridionalis septentrionalis, Charopidae sp. 34 (NMNZ M.151454 \\Korukoura meadsi\\, Chalinolobus tuberculatus, Leiopelma hochstetteri	#REF!		3		131
Remaining Ruahine FP	#REF!	Not priortised			0								1 1 1	Apteryx mantelli, Hymenolaimus malacorhynchos, Chalinolobus tuberculatus	#REF!		3		134
Resolution Island	#REF!	Not priortised		1	1								1 1 1 1	Apteryx australis 'southern Fiordland', Xenicus gilviventris, Mohoua ochrocephala, Nestor notabilis	#REF!		6		165
Roaring Meg	#REF!	4.Sustained stoat and pulsed rat control in diverse masting forests using an aerial operation every 3 years	**Stoats**, possums, rats	1	1	1. Kiwi population is stable or increasing as indicated by call rate trends across call count or ARD surveys. 2.Number of whio pairs on suveyed river sections is stable or increasing.	Aerial treatment area targets: 1. Mustelid 21-night tracking does not exceed 10% in the period Sep-June for 2 years in 3. 2. Rat 1-night tracking index never exceeds 30% for more than 3 months during beech masts. 3. Rat 1-night tracking index does not exceed 5% for the period November-February for at least 1 year in 3. 4.Possum RAI level does not exceed 2% RTC.		Mast treatment timing: • Immediately following beech seed germination yr 1 (December - Feb). Non mast year treatment timing: •July-Sep	Mast treatment: •If deltaT for the next year is >0.7 = plan post mast operation •If rat tracking levels are predicted to reach 30% 1 Night TTI target by Nov of year 1 = trigger post mast operation. Non-mast treatment: At return year (year 3 since mast/last operation) and rat tracking in May-August indicates that 5% TTI target for Nov-Feb will be exceeded.Proceed if deltaT ≤ 0.5.If delta T > 0.5, consult TAG .			1 1 1 1 1	Apteryx haastii, Hymenolaimus malacorhynchos, Bowdleria punctata punctata, Nestor notabilis, Powelliphanta gagei	#REF!	4	3		75
Rotoehu	#REF!	3.Sustained stoat and rat control in diverse masting NI forests using an aerial operation every 3 years and annual ground control	**Rats, possums,** stoats	1	1	1.The number of kokako pairs is increasing or remains stable.	Overall (aerial treatment block) targets: 1. Rat 1-night tracking index below 5% for the period November-February 1 year in 3 (3 yearly, aerial treatment year). 2. Possum RAI level does not exceed 5% RTC Ground treatment block: 1. Rat 1-night tracking index below 5% for the period November-February in all years. 2.Possum RAI level is below 5% RTC for the period Nov-February in all years.		August-October	At return year (3 yearly) as per timing (August-Oct) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Rat (and possum) control area of ~?ha within the 2867 ha aerial treatment area. Pesticides in bait stations annually in non-aerial 1080 treatment years.		1	Callaeas wilsoni	#REF!	3	3		31

Site	Region	Priority	Pests	Flags A	Count	Outcomes	Result targets		Timing	Triggers	Other control	Comments	Flags B	Species	Ref				ID
Ruamahanga	#REF!	Not priortised			0					If delta T > 0.5, consult TAG			1 1	Nestor meridionalis septentrionalis, Mecodema quoinense, Chalinolobus tuberculatus	#REF!		3		17
Russell Forest / Cape Brett	#REF!	Not priortised			0								1 1 1	Apteryx mantelli, Hemiphaga novaeseelandiae, Amborhytida dunniae, Paryphanta busbyi busbyi, Schizoglossa worthyae, Chalinolobus tuberculatus, Anas chlorotis	#REF!		3		4
Saltwater	#REF!	Not priortised			0								1 1 1 1	Botaurus poiciloptilus, Petroica australis australis, Bowdleria punctata punctata, Hydroprogne caspia, Charadrius bicinctus bicinctus, Nestor notabilis, Mokopirirakau granulatus, Haematopus finschi	#REF!		3		108
Seaforth Grebe	Te Anau	2.5.Sustained stoat and rat control in beech dominated forests where red beech is absent using up to two aerial operation per mast	**Stoats, rats, possums**	1 1 1	3	1. Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 2. Kea population is increasing, evaluated by trends in call rates across ARD surveys. 3. Long-tailed Bat abundance is increasing, evaluated by pass rate trends across ARD surveys. 4. Mistletoe Foliage cover for uncaged monitored plants is > 50%; <5% of plants have any possum browse 5.The mohua population is increasing as indicated by trends across surveys in the mean number of mohua groups per km detected on transects and by call rates trends across ARD surveys. 6.The mean count of rock wren on transects increases to >2 per transect and is maintained. 7. Kaka population is increasing, evaluated by trends in call rates across ARD surveys.	1.Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Irruptive stoat populations are always controlled to low levels in the 1st quarter of yr 2. 3. Rat 1-night tracking index does not exceed 10%		Mast treatment timing: •Immediately following beech seed germination yr 1 (Nov-Feb) unless rat irruption potential is unusually high (TAG to advise if pre-mast operation is required) Non mast year treatment timing: • Timing as required to achieve tracking rate targets for rats and stoats OR to ensure time between aerial treatment (mustelid control) does not exceed 3 years.	Mast treatment: •If deltaT for the next year is 0.5 to 1.2 or 200-1000 seeds/m2 AND May 1-night (year 0) rat tracking is ≥5% = ask TAG advice for triggering post-mast operation •If deltaT for the next year is >1.2 or >1000 Seeds/M² = plan to trigger post mast operation (from Nov-Feb post germination in yr 1) AND ask TAG advice if pre mast operation is required. Non mast treatment: Operation triggered if •Mustelid monitoring survey results indicate that mustelid or rat result targets (of not exceeding 10% 21 night tracking rate for more than one consecutive summer/ 1-night tracking rate of no greater than 10%) will be exceeded. OR Interval since last control operation has reached 3 years			1 1 1 1 1 1 1 1 1 1	Alepis flavida, Peraxilla colensoi, Peraxilla tetrapetala, Apteryx australis 'southern Fiordland', Petroica australis australis, Mohoua ochrocephala, Hemiphaga novaeseelandiae, Nestor meridionalis meridionalis, Nestor notabilis, Powelliphanta spedeni lateumbilicata, Chalinolobus tuberculatus, Xenicus gilviventris	#REF!	2.5	3	0.1	264
Ship Cove-Furneaux	#REF!	Not priortised			0								1	Powelliphanta hochstetteri bicolor	#REF!		3		19
Southern Ruahine Range	#REF!	Not priortised			0								1	Hymenolaimus malacorhynchos	#REF!		4		112
St Arnaud Range	#REF!	7. Possum control with pulsed stoat and rat control, in all masting forests using an aerial operation every 6 years.		1 1 1 1	4	1. Possum vulnerable plant species survival and regeneration is not being impacted by possum browse levels.	1. Possum RAI level does not exceed 4% RTC		May-September	At return year (6 yearly) as per timing (July-October) if delta T ≤ 0.5. If delta T > 0.5, consult TAG			1 1 1 1 1 1 1 1	Alepis flavida, Peraxilla colensoi, Peraxilla tetrapetala, Pittosporum patulum, Apteryx haastii, Petroica australis australis, Nestor meridionalis meridionalis, Nestor notabilis, Chalinolobus tuberculatus, Mokopirirakau granulatus, Naultinus stellatus, Oligosoma newmani	#REF!	7	6		139
Stewart Island Dotterel	#REF!	Not priortised			0									Ranunculus viridis, Oligosoma notosaurus, Charadrius obscurus obscurus, Apteryx australis australis	#REF!		3		178
Takitimu Mountains	#REF!	Not priortised			0									Peraxilla colensoi, Peraxilla tetrapetala, Oligosoma judgei	#REF!		6		173
Tangarakau River	Whanganui	Not priortised													#VALUE!		4		160
Taranaki Mounga Project	#REF!	3.Sustained stoat and rat control in diverse masting NI forests using an aerial operation every 3 years and annual ground control	**Possums, rats,** stoats	1 1	2	1. Live *Powelliphanta* density in repeat measured plots is increasing. ~~2. *Dactylanthus* seed set occurs in a sample of marked uncaged plants.~~ 3. Number of whio pairs on surveyed river sections is increasing. 4. The kiwi population on the Kaitake Range and main cone-Pouakai is increasing as indicated by call rate trends accross ARD suveys and/or other survey methods. 5. *Melicytus drucei* foliar cover maintenance and dieback levels are not impacted by possum browse. As indicated by FCI monitoring. 6. Possum vulnerable tree species (including ...) dieback levels and canopy cover maintenance is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods. 7. The translocated NI Robin population is secure and increasing in abundance.	Main cone-Pouakai Range Aerial Block: 1.Possum RAI level does not exceed 5% RTC. 2.Mustelid 1-night tracking rate of 0% in the period Sep-June 2 years in 3 3.Rat 1-night tracking index below 10% for the period November-Feb for 1 year in 3. Main cone-Pouakai mustelid-network block: 1. Mustelid 1-night tracking index level 0% year-round in all years. Main cone rat suppression block (1000 ha): 1. Rat 1-night tracking index level below 10% year-round. Kaitake Range: 1. Possums at zero abundance 2. Mustelid 1-night tracking index level 0% year-round in all years 3. Rat 1-night tracking index level below 10% for the period Nov-Feb for 1 year in 3.		June-October	At return year (3 yearly) as per timing (June-Oct) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Kaitake Range: Possum removal operation using nework of remote monitored leghold traps , detection cameras, and targeted trapping/hunting. Intensive stoat and ferret trapping network. Area of ground based rat control with bait station pesticides is being implimented. Main cone-Pouakai: Stoat and ferret trapping network over (>7500 ha). Dactylanthus protection? 1000 ha area of sustained rat control with a network of GN A24 traps.		1 1 1 1 1	Dactylanthus taylorii, Melicytus drucei, Apteryx mantelli, Hymenolaimus malacorhynchos, Powelliphanta \\Egmont\\	#REF!	3	3		95
Tasman Wilderness	Buller	2.Sustained stoat and rat control in upland beech dominated forests using up to two aerial operations per mast	**Stoats, rats, possums**	1 1 1	3	1. Great Spotted Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 2. The mean count of rock wren increases to >2 per transect and is maintained. 3. Number of whio pairs on suveyed river sections is increasing. 4. Long-tailed Bat abundance is increasing, evaluated by pass rate trends across ARD surveys.	1.Rat 21-night tracking never exceeds 5% in rock wren habitat. 2.Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 3. Possum RAI level does not exceed 2% RTC. 4. Rat 1-night tracking index never exceeds 30%. 5.Annual-average 1-night rat tracking level is less than 10%.		Mast treatment timings: Rat irruption predicted (year zero rat abundance plus mast prediction): • Sep-Dec (pre seed set) AND SUBJECT TO RAT ABUNDANCE LEVELS: • Feb-March (16 months later following seed germination) Non mast year treatment timing: • Timing as required to achieve average annual tracking rate target.	Mast: Year 0: Delta T for following year >0.7 and rat presence in August is primed for levels to breach 30% 1 Night TTI target before Nov of year 1 = Sep-Dec pre seed set operation. THEN Year 1-2: If 1-night rat tracking in May is >5% assess (model growth rate relative to 30% 1-night TTI target, and 10% non mast target), confirm and plan for post mast operation from Feb-March of yr 2. Confim post gemination operation based on actual tracking rate in November. Non mast (including mast years 0 &2): Operation triggered if monitoring survey results indicate that mustelid or rat result targets (of not exceeding 10% 21 night tracking rate for more than one consecutive summer/average 1-night tracking rate of no greater than 10%) will be exceeded.			1 1 1 1 1 1 1 1 1	Apteryx haastii, Bowdleria punctata punctata, Chalinolobus tuberculatus, Hymenolaimus malacorhynchos, Nestor meridionalis meridionalis, Nestor notabilis, Nestor meridionalis meridionalis, Peraxilla colensoi, Peraxilla tetrapetala, Petroica australis australis, Powelliphanta lignaria oconnori, Xenicus gilviventris	#REF!	2	3	0.5	271
Tawarau	#REF!	Not priortised			0								1 1 1 1 1 1	Dactylanthus taylorii, Hemiphaga novaeseelandiae, Nestor meridionalis septentrionalis, Chalinolobus tuberculatus, Leiopelma archeyi, Leiopelma hochstetteri	#REF!		3		88
Te Kopia	#REF!	Not priortised		1 1	2								1 1	Dactylanthus taylorii, Peraxilla tetrapetala	#REF!		6		5
Te Maruia	#REF!	2.Sustained stoat and rat control in upland beech dominated forests using up to two aerial operations per mast	**Rats, stoats, possums**	1 1 1 1 1 1	6	1. Kea call rate from ARD's are increasing. 2. Long-tailed Bat population is stable or increasing, evaluated by pass rate trends across ARD surveys. 3. The rock wren population is stable or increasing as indicated by trends in the number of birds per km of transect across surveys 4. Mistletoe Foliage cover for uncaged monitored plants is > 50%; <5% of plants have any possum browse	1.Rat 1-night tracking index never exceeds 30% . 2.Annual-average 1-night rat tracking level is less than 10%. 3.Rat 21-night tracking does not exceed 5% in rock wren habitat. 4.Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 5.Possum RAI level does not exceed 2% RTC.		Mast treatment timings: Rat irruption predicted (year zero rat abundance plus mast prediction): • Sep-Dec (pre seed set) AND SUBJECT TO RAT ABUNDANCE LEVELS: • Feb-March (16 months later following seed germination) Non mast year treatment timing: • Timing as required to achieve average annual tracking rate target.	Mast: Year 0: Delta T for following year >0.7 and rat presence in August is primed for levels to breach 30% 1 Night TTI target before Nov of year 1 = Sep-Dec pre seed set operation. THEN Year 1-2: If 1-night rat tracking in May is >5% assess (model growth rate relative to 30% 1-night TTI target, and 10% non mast target), confirm and plan for post mast operation from Feb-March of yr 2. Confim post gemination operation based on actual tracking rate in November. Non mast (including mast years 0 &2): Operation triggered if monitoring survey results indicate that mustelid or rat result targets (of not exceeding 10% 21 night tracking rate for more than one consecutive summer/average 1-night tracking rate of no greater than 10%) will be exceeded.			1 1 1 1 1 1 1	Alepis flavida, Peraxilla colensoi, Peraxilla tetrapetala, Melicytus flexuosus, Hymenolaimus malacorhynchos, Petroica australis australis, Xenicus gilviventris, Nestor meridionalis meridionalis, Nestor notabilis, Chalinolobus tuberculatus	#REF!	2	4	0.6	76
Tennyson Inlet	#REF!	4.Sustained stoat and pulsed rat control in diverse masting forests using an aerial operation every 3 years	**Rats, possums**	1	1	1. Live Powelliphanta density in repeat measured plots is increasing. 2. Possum vulnerable tree species (including ?) dieback levels and canopy cover maintenance is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods.	1.. Possum RAI level does not exceed 5% RTC. 2. Rat 1-night tracking index does not exceed 30% at elevations >600m. 4. Annual-average 1-night rat tracking level is less than 15% above 600m.		July-October	Mast treatment: •If deltaT for the next year is >0.7 = plan for post mast operation •If rat tracking levels are predicted to exceed 30% 1 Night TTI above 600m by Nov of year 1 = trigger post mast operation. Non mast treatment: Operation triggered if rat monitoring survey results from the previous 2 sessions indicate that annual-average 1-night rat tracking level will exceed 15% above 600m.			1 1 1	Alepis flavida, Peraxilla colensoi, Peraxilla tetrapetala, Powelliphanta hochstetteri obscura, Naultinus manukanus	#REF!	4	3		46
Tongariro Kiwi Sanctuary and whio sequrity site	#REF!	6.Sustained possum control with pulsed rat and stoat control in diverse masting NI forests using an aerial operation every 4 years	**Stoats,** possums, rats	1 1	2	1. Number of whio pairs on surveyed river sections is stable or increasing. 2. The kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 3.*Pittosporum turneri* , survival and regeneration is not being impacted by possum browse levels. ~~4.*Dactylanthus* seed set occurs in a sample of marked uncaged plants.~~	1. Mustelid 21-night tracking index level does not exceed 10% in the period Sept-June, for 2 years in 3. 2.Possum RAI level does not exceed 5% RTC.		July-September	At return year (4 yearly) as per timing (July-Sep) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Ferret control by trapping on boundaries with adjoining farmland/non forest habitats and open habitats within the site. Mustelid control to protect whio, by trapping in and adjacent to sections of the Whakakapapa, Whanganui and Mangatepopo rivers. Localised possum control/exclusion to protect Dactylanthus.		1 1 1 1 1	Dactylanthus taylorii, Pittosporum turneri, Apteryx mantelli, Hymenolaimus malacorhynchos, Chalinolobus tuberculatus	#REF!	6	4		84
Upper Pelorus	#REF!	Not priortised		1	1								1 1 1 1 1	Nestor notabilis, Powelliphanta hochstetteri consobrina, Mokopirirakau granulatus, Naultinus manukanus, Pittosporum patulum	#REF!		3		103
Upper Rakaia River	#REF!	Not priortised			0									Larus bulleri, Charadrius bicinctus bicinctus, Anarhynchus frontalis, Chlidonias albostriatus, Haematopus finschi	#REF!		3		208
Waianakarua	#REF!	Not priortised			0								1	Tupeia antarctica	#REF!		6		127
Waikaia beech forests	#REF!	Not priortised			0								1 1 1 1	Peraxilla colensoi, Petroica australis australis, Chalinolobus tuberculatus, Oligosoma chloronoton	#REF!		4		44
Waimahuru SR	#REF!	Not priortised			0									Clianthus maximus	#REF!		6		133
Waipoua	Kauri Coast	3.Sustained stoat and rat control in diverse masting NI forests using an aerial operation every 3 years and annual ground control	**Stoats, rats, possums**	1 1 1 1 1 1	6	1. Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 2. The number of kokako pairs is increasing and reaches 100 in the Waipoua/Mataraua block by 2025 and 25 pairs in the Waima Block by 2025 3. Long-tailed Bat population is increasing, evaluated by pass rate trends across ARD surveys. 4.Possum vulnerable plant species (including ....) dieback levels and canopy cover maintenance is not being impacted by possum browse levels. As indicated by FCI methodology.	1. Mustelid 21-night tracking index level does not exceed 10% in the period Sept-June, for 2 years in 3. 2. Rat 1-night tracking index below 5% for the period November-February for at least 1 year in 3 (3-yearly, aerial treatment year). 3.Possum RAI level does not exceed 5% RTC. Ground control blocks 1. Rat 1-night tracking index below 5% for the period November-February in all years. 2. Possum RAI level does not exceed 2% for the period November-February in all years. 2. Mustelid 21-night tracking index level does not exceed 10% for the period Sept-June, in all years.		August-October	At return year (3 yearly) as per timing (August-Oct) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Rat, possum, and mustelid control over 2 blocks Waipoua/Mataraua: 1400ha Waima:800 ha To achieve rat, possum and stoat result targets annually		1 1 1 1	Coprosma waima, Apteryx mantelli, Callaeas wilsoni, Olearia crebra, Ackama nubicola, Amborhytida dunniae, Amborhytida forsythi, Paryphanta busbyi busbyi, Chalinolobus tuberculatus	#REF!	3	3		104
Waitaanga Plateau	#REF!	4.Sustained stoat and pulsed rat control in diverse masting forests using an aerial operation every 3 years	**Stoats, rats,** possums	1 1	2	1. The ST bat population is increasing, measured by roost emergence counts or pass rate trends across ARD surveys. 2.Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 3. Long-tailed Bat population isincreasing, evaluated by pass rate trends across ARD surveys. 4.Possum vulnerable tree species (including totara, rata) dieback levels and canopy cover maintenence is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods.	1. Mustelid 21-night tracking index level does not exceed 10% in the period Sept-June, for 2 years in 3 2. Rat 1-night tracking index below 5% for the period November-February for at least 1 year in 3 (3-yearly, aerial treatment year). 3.Possum RAI level does not exceed 5% RTC.		July-October	At return year (3 yearly) as per timing (July-Oct) if delta T ≤ 0.5. If delta T > 0.5, consult TAG			1 1 1 1 1 1 1	Dactylanthus taylorii, Peraxilla colensoi, Apteryx mantelli, Chalinolobus tuberculatus, Mystacina tuberculata rhyacobia, Callaeas wilsoni	#REF!	4	3		93
Waituna Awarua Plains	#REF!	Not priortised			0									Botaurus poiciloptilus, Bowdleria punctata punctata, Larus bulleri, Charadrius bicinctus bicinctus, Woodworthia maculata, Oligosoma chloronoton, Charadrius obscurus obscurus, Haematopus finschi	#REF!		3		198
Waitutu	#REF!	4.Sustained stoat and pulsed rat control in diverse masting forests using an aerial operation every 3 years	**Possums, stoats,** rats	1 1 1 1	4	1. Kaka population is increasing when evaluated by call rates from ARDs and/or other abundance monitoring measures. 2.Mistletoe populations are no longer in decline and are recovering from previous possum impact. As evaluated by survival, cover scores and browse levels on monitored plants.	1. Mustelid 21-night tracking does not exceed 10% in the period Nov-April for 2 years in 3. 2. Rat 1-night tracking index does not exceed 5% for the period November-March for at least 1 year in 3. 3.Possum RAI level does not exceed 2% RTC		July-October	At return year (3 yearly) as per timing (June-August) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Stoat control over 5000 ha by trapping (quarterly trap servicing).	Should result targets for rats and timing/triggering advice for non mast years be the same as other 'mast 1' sites (those that have rat-sensitive key species? There are rat sensitive benefit species here - robin and fernbird. Probabaly not rat senstive enough (or priority) to need a inter-mast year rat management?	1 1 1 1 1 1 1 1	Alepis flavida, Peraxilla colensoi, Peraxilla tetrapetala, Tupeia antarctica, Petroica australis australis, Bowdleria punctata punctata, Hemiphaga novaeseelandiae, Nestor meridionalis meridionalis, Nestor notabilis	#REF!	4	3		61

Wakamarama Burnett	#REF!	4.Sustained stoat and pulsed rat control in diverse masting forests using an aerial operation every 3 years	**Possums, rats,** stoats	4	4	1. Live *Powelliphanta* density in repeat measured plots is increasing. 2. Great Spotted Kiwi call rate from ARD's rate are increasing. 3.Long-tailed Bat abundance is increasing, evaluated by pass rate trends across ARD surveys. 4. Possum vulnerable tree species (including ?) dieback levels and canopy cover maintenence is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods.	1. Mustelid 21-night tracking in Feb does not exceed 10% for half of all years between operations. 2. Possum RAI level does not exceed 5% RTC. 3. Rat 1-night tracking index does not exceed 30% above 600m. 4. Annual-average 1-night rat tracking level is less than 15%.		Mast treatment timing: • Immediately following beech seed germination yr 1 (October - Dec). Non mast year treatment timing: • Timing as required to achieve average annual tracking rate target	Mast treatment: •If deltaT for the next year is >1.2 = plan for post mast operation • Confirm operation on May (yr1) rat tracking exceeding 25% in whole block in all sets, ask TAG I f close to this •If rat tracking levels are predicted to exceed 30% 1 Night TTI above 500m by Nov of year 1 = trigger post mast operation. Non mast treatment: If Possum RAI level set to exceed 5% RTC.			1 4 1	Botaurus poiciloptilus, Bowdleria punctata punctata, Chalinolobus tuberculatus, Mokopirirakau granulatus, Nestor notabilis, Oligosoma newmani, Petroica australis australis, Powelliphanta gilliesi "Haidinger", Powelliphanta gilliesi gilliesi, Powelliphanta gilliesi montana, Powelliphanta superba superba	#REF!	4	3		143
Wangapeka	#REF!	1.Sustained stoat and pulsed rat control in upland beech dominated forests using a single aerial operation per mast	**Stoats,** rats, **possums**	1 1 1	3	1. Kaka population is increasing when evaluated by call rates from ARDs. 2. Kea population is increasing when evaluated by call rates from ARDs. 3.Number of whio pairs on surveyed river sections is increasing. 4. Live Powelliphanta density in repeat measured plots is increasing. 5. Long-tailed Bat abundance is increasing, evaluated by pass rate trends across ARD surveys.	1. Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Mustelid 21-night tracking does not exceed (<5% 21 night TTI) in the 1st quarter of yr 3 3. Irruptive stoat populations are always controlled no later than the May of yr 2. 4. 98% kill rate for rodents in all operations. 5. Possum RAI level does not exceed 2% RTC	Go post germination	Mast treatment timing: • Immediately following beech seed germination yr 1 (December - Feb). Non mast year treatment timing: • Timing as required to achieve average annual mustelid tracking rate target	Mast If deltaT for the next year is >0.7 =plan post mast operation Dec-March yr 1. THEN If deltaT prediction in April of year 1 is for a higher magnitude mast in year 2 (masts two years in a row) postpone planned operation for 12 months and inform TAG If deltaT prediction in April of year 1 is for a similar or lesser magnitude mast in year 2 (masts two years in a row) seek TAG advice THEN If deltaT prediction in April of year 1 is >0.7 then wait until May rat tracking results to see if predicted levels will exceed 30% 1 Night TTI by Feb of year 2 = trigger post mast operation from Dec of yr 1 and by May yr2. Non mast treatment: Operation triggered if mustelid monitoring survey results from the previous 2 sessions indicate that 10% 21-night tracking rate target will be exceeded within the next 12 months.			1 1 1 1	Chalinolobus tuberculatus, Hymenolaimus malacorhynchos, Melicytus (a) (CHR 355077; Matiri Range), Nestor meridionalis meridionalis, Nestor notabilis, Peraxilla colensoi, Petroica australis australis, Pittosporum patulum, Powelliphanta "Owen", Powelliphanta lignaria oconnori	#REF!	1	3		269
Warawara	#REF!	7. Possum control with pulsed stoat and rat control, in all masting forests using an aerial operation every 6 years.	Rats, possums, stoats		0	1. The titipounamu population is increasing as indicated by trends across annual transect counts/5MBC. 2. Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 3. Possum vulnerable tree species (including ?) dieback levels and canopy cover maintenence is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods.	Aerial treatment block: 1. Rat 1-night tracking index below 5% for the period August-Feb, 1 year in 5 (aerial treatment year). 2.Mustelid 21-night tracking index level does not exceed 10% in the period Sept-June, 1 year in 5 (aerial treatment year) 3. Possum RAI level does not exceed 10% RTC. Ground control Block: 1. Rat 1-night tracking index below 5% for the period August-Feb every year.		June-August	At return year (6 yearly) as per timing (June-August) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Ground based rat control is not currently implemented, will likely be required in non-aerial treatment years to meet result targets to recover/secure rifleman population.		1 1 1	Apteryx mantelli, Chalinolobus tuberculatus, Acanthisitta chloris	#REF!	7	6		170
West Cape	#REF!	Not priortised			0								1 1 1 1 1	Euphorbia glauca, Apteryx australis 'southern Fiordland', Xenicus gilviventris, Hemiphaga novaeseelandiae, Nestor notabilis, Powelliphanta fiordlandica	#REF!		4		177
West Matukituki	#REF!	Not priortised			0								1 1 1 1 1 1	Alepis flavida, Peraxilla colensoi, Petroica australis australis, Xenicus gilviventris, Nestor meridionalis meridionalis, Nestor notabilis, Chalinolobus tuberculatus	#REF!		4		48
Wet Jacket Peninsula	Te Anau		**Stoats,** rats, possums	1 1	2	1. Kiwi population is increasing, evaluated by call rate trends across call count or ARD surveys. 2. Kea population is increasing, evaluated by trends in call rates across ARD surveys.	1.Mustelid 21-night tracking does not exceed 10% for more than one consecutive summer. 2. Mustelid 21-night tracking 0% at least one summer in 3. 3. Irruptive stoat populations are always controlled to low levels by the 2nd quarter of yr 2. 4. Possum RAI level does not exceed 2% RTC.		Mast treatment timing: •March-June yr 2 (post seedfall year) Non mast year treatment timing: • April-June. As required to achieve tracking rate targets for stoats OR to ensure time between aerial treatment (mustelid control) does not exceed 3 years.	Mast treatment: •If deltaT for the next year is 0.5 to 1.2 or 200-1000 seeds/m2 = ask TAG advice for triggering post-mast operation (in March-June yr2) •If deltaT for the next year is >1.2 or >1000 Seeds/M² = trigger post mast operation (in March-June yr 2) Non mast treatment: Operation triggered if •Mustelid monitoring survey results indicate that stoat result targets will otherwise be exceeded. OR Interval since last control operation has reached 3 years		update targets, triggers and timing to new perscription	1 1 1 1	Apteryx australis 'southern Fiordland', Xenicus gilviventris, Nestor notabilis, Powelliphanta fiordlandica	Southern Fiordland tokoeka, Rock wren, Kea, Powelliphanta fiordlandica	1	3		115
Whanganui-Mangapurua	#REF!	6.Sustained possum control with pulsed rat and stoat control in diverse masting NI forests using an aerial operation every 4 years	**Stoat,** rats, **possums**	1	1	1. Kiwi population is increasing as indicated by call rate trends across call count or ARD surveys. 2.Possum vulnerable tree species (including totara, rata) dieback levels and canopy cover maintenence is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods. 3. Number of whio pairs on surveyed river sections is increasing. 4. Long-tailed Bat population is increasing, evaluated by pass rate trends across ARD surveys.	1. Mustelid 21-night tracking index level does not exceed 10% in the period Sept-June for 2 years in 4. 2.Rat 1-night tracking index below 5% for the period November-January for 1 year in 4 (4 yearly, aerial treatment year). 3. Possum RAI level does not exceed 5% RTC.		July-September	At return year (4 yearly) as per timing (July-Sep) if delta T ≤ 0.5. If delta T > 0.5, consult TAG			1 1 1	Apteryx mantelli, Hymenolaimus malacorhynchos, Chalinolobus tuberculatus	#REF!	6	4		9
Whareorino and Moeatoa	#REF!	3.Sustained stoat and rat control in diverse masting NI forests using an aerial operation every 3 years and annual ground control	**Rats, possums, stoats**	1 1 1	3	1. The Archey's Frog population in the Whareorino Frog protection area is increasing, as determined by trends across mark recapture plot abundance estimates. 2. The Hochstetters Frog population in (block?) is increasing, as determined by trends across site occupancy surveys. 3.L.T Bat population is stable or increasing as assessed by pass rates on ARDs.	Whareorino (including frog protection area): 1. Rat 1-night tracking index below 5% for the period November-February 1 year in 3 (3 yearly, aerial treatment year) 2. Possum RAI level does not exceed 5% RTC. 3. Mustelid 21-night tracking in summer does not exceed 10% for 2 years in 3. Frog protection block: 1. Rat TTI is maintained below 10% TTI year round in all years.		July-October	At return year (3 yearly) as per timing (July-Oct) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Ground control block suppress rats to protect frogs.		1 1 1 1 1 1	Dactylanthus taylorii, Hemiphaga novaeseelandiae, Nestor meridionalis septentrionalis, Chalinolobus tuberculatus, Leiopelma archeyi, Leiopelma hochstetteri	#REF!	3	3		89
Whataroa	South Westland	Not priortised													#VALUE!		5		78
Whenuakite	#REF!	6.Sustained possum control with pulsed rat and stoat control in diverse masting NI forests using an aerial operation every 4 years	**Stoats**, possums, rats	1	1	1. Kiwi population is stable or increasing as indicated by call rate trends across call count or ARD surveys.	1.Mustelid 3-night index 0% in the period September-June, 1 year in 5 (5 yearly, aerial treatment year).		July-September	At return year (4 yearly) as per timing (July-Sep) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Sustained year-round stoat trapping across and beyond the NPCP funded aerial treatment area.		1 1	Apteryx mantelli, Hemiphaga novaeseelandiae, Nestor meridionalis septentrionalis	#REF!	6	4		21
Whirinaki	#REF!	4.Sustained stoat and pulsed rat control in diverse masting forests using an aerial operation every 3 years	**Stoats, possums, rats**	1 1 1 1 1 1 1 1 1 1 1	11	1. Kaka population is increasing, evaluated by call rates from ARDs and/or other abundance monitoring measures. 2. The ST bat population is increasing, measured by roost emergence counts. 3. Long-tailed Bat pass rate is increasing, evaluated by pass rate trends across ARD surveys. 4.Kiwi population is increasing, evaluated by call rate trends across call count or ARD surveys. 5. Yellow-crowned parakeet population is increasing as indicated by call rates trends from ARD surveys. 6. Number of whio pairs on surveyed river sections is increasing. 7. Pittosporum tuneri adult foliage cover is not impacted by possum browse levels. 8. Mistletoe Foliage cover for uncaged monitored plants is > 50%; <5% of plants have any possum browse. ~~9. *Dactylanthus* seed set occurs in a sample of marked uncaged plants.~~	Aerial treatment area targets: 1. Mustelid 21-night tracking does not exceed 10% in the period Sep-June for 2 years in 3. 2. Rat 1-night tracking index never exceeds 30% for more than 3 months during beech masts. 3. Rat 1-night tracking index does not exceed 5% for the period November-February for at least 1 year in 3. 4.Possum RAI level does not exceed 5% RTC.		July-Sep	~~Mast treatment:~~ ~~•If deltaT for the next year is >0.7 = plan post mast operation~~ ~~•If rat tracking levels are predicted to reach 30% 1 Night TTI target by Nov of year 1 = trigger post mast operation.~~ ~~Non-mast treatment:~~ ~~At return year (year 3 since mast/last operation) and rat tracking in May-August indicates that 5% TTI target for Nov-Feb will be exceeded.Proceed if deltaT ≤ 0.5.If delta T > 0.5, consult TAG .~~ At return year (3 yearly) as per timing (August-Oct) if delta T ≤ 0.5. If delta T > 0.5, consult TAG	Stoat trapping networks to provide protection to whio; Ground based rat control; ground based possum control.	A large area of this site has beech forest and will be subject mast driven predator irruption cycles - on top of high non-mast year rat carrying capacity in mixed forest component. The precribed 3-yearly default return time, with seedfall period aviodance is advised. Intially was a 'Mast' site. NP	1 1 1 1 1 1 1 1 1	Dactylanthus taylorii, Alepis flavida, Peraxilla colensoi, Peraxilla tetrapetala, Pittosporum turneri, Melicytus flexuosus, Apteryx mantelli, Hymenolaimus malacorhynchos, Hemiphaga novaeseelandiae, Nestor meridionalis septentrionalis, Chalinolobus tuberculatus, Cyanoramphus auriceps	#REF!	4	3		37
Wilberforce	#REF!	7. Possum control with pulsed stoat and rat control, in all masting forests using an aerial operation every 6 years.	**Possums, stoats**	1	1	1. Cedar-totara forest canopy maintenence and dieback is not being impacted by possum browse levels. As indicated by FCI methodology or aerial imagery assessment methods. 2. Kea population is increasing when evaluated by trends in call rates across ARD surveys.	1. Possum RAI level does not exceed 10% RTC. 2.Mustelid 21-night tracking index level does not exceed 10% in the period August-Feb for 2 years in 5.		May-August	At return year (6 yearly) as per timing (July-October) if delta T ≤ 0.5. If delta T > 0.5, consult TAG		Kea are listed as a key species, is the management that will be applied (6 yearly 1080 treatment alone) enough to protect kea populations here?	1	Nestor notabilis, Libocedrus bidwillii, Podocarpus laetus	#REF!	7	6		2

Method Best practice for National Predator Control Programme Aerial 1080 baiting

Version 2.0 April 2024

Contents

Introduction

These guidelines provide best practice recommendations for DOC's National Predator Control Programme (NPCP) aerial 1080 operations to be applied at the relevant steps in the Operational planning for animal pest operations SOP DOCDM-1488532. They draw on the existing Current Agreed Best Practice System and from lessons learned from previous NPCP operations. They have been evaluated and agreed to by the NPCP Technical Advisory Group.

This method best practice guidance applies to operations using aerially applied 1080 cereal pellets to target rats and/or possums and those that also target stoats (through secondary poisoning) as a beneficial by-kill.

Best practice is guidance you should follow unless you have very good reason not to. Unlike SOP standards which must be adhered to, best practice is there to provide the current benchmark for doing a good job but recognises that some adaptation may be required to suit different circumstances. If you think you cannot or should not follow best practice, this is a signal that you need to discuss the issue with technical staff (e.g., NPCP TAG) and managers. Operations in kea habitat are required as a condition of the DOC permission to comply with the standards identified in the aerial 1080 in kea habitat SOP.

Summary

Key elements of this current agreed best practice are summarised in the box below. Each point and variations are further explained in the numbered points following [and identified in brackets in the summary]. The main topic of each numbered point is **bold**.

- **To optimise rat kills, the timing of bait application should avoid mast seeding periods [1.]**
- **Always use 6 gram (16mm) cereal bait single lured [4.]**
- **In normal conditions use 1.5kg/ha prefeed and sow 1.5kg/ha toxic bait as soon as possible after 5 days [5, 6, 8,10, 11, 12].**
- **When possums are >15% RTCI use 2kg/ha prefeed and 2kg/ha toxic bait [7,9.]**
- **A prefeed to toxic bait application interval of up to 8 weeks is acceptable when rat populations are not growing. Toxic bait should be applied within 4 weeks of the prefeed application if rat populations could be growing. If these intervals may be exceeded seek TAG advice to consider if prefeed application should be repeated [13.].**
- **Overlap swathes of bait in both the prefeed and toxic applications by 20m [17.]**

Design

1. Baiting when rats have abundant natural food (e.g., during seed availability periods of beech mast events) risks a poor kill. Rat kills can be optimised by baiting when natural food resources are low, and the population is not growing. These conditions are also likely to result in high mouse kills. Designing operations to ensure that few non-toxic rodents remain (i.e., high kill rates of rats and mice collectively), will help to optimise stoat kills.

2. The aerial 1080 in kea habitat SOP DOC-2612859 includes performance standards that constrain the timing of operations in kea habitat to prevent a stoat irruption. Refer to the aerial 1080 in kea habitat SOP to determine the performance standards that apply to your operation.

3. Be clear about which pests are targeted and why by working through the animal pest framework preparing phase steps 1-5. Advice to support these steps can be found in the Outcomes, Targets and Control Design Spreadsheet (DOC-7200348). For guidance on legal aspects of **selecting target pests**, refer to technical advice on target pests for aerial 1080 operations DOC- 2649524.

4. The following **bait formulations** are available:
    - Pronature DF ('RS5' (Orillion))
    - Pestex (PCR)
    - Pronature WF (Wanganui No. 7 (Orillion)).
    - Prodeer Possum and Rat Bait (RS5 with deer repellent (Orillion)
    - Prodeer WF (Wanganui No.7 with deer repellent (Orillion))
    - Pestex DR (Pestex with deer repellent (PCR))

Always use 6 gram (16mm) **sized** baits when targeting rats containing 0.15% **1080 concentration** (1.5g/kg) and 0.15% cinnamon **lure** (i.e., single lure). Higher concentrations of lure may reduce the palatability of baits to rats, lower concentration of 1080 may reduce efficacy against possums.

The aerial 1080 in **kea habitat** SOP DOC-2612859 includes performance standards that limit the bait type to only cinnamon-lured Pronature DF (RS5) or Pestex prefeed and toxic baits in kea habitat.

Prefeed application

5. Pre-feeding is compulsory. Use the same **formulation of non-toxic pre-feed** as the toxic bait. Normally pre-feed is un-dyed but it should contain the lure at 0.15%w/w. If pre-feed is dyed it is more easily confused with toxic bait.

6. Apply **prefeed** at an average **rate** of 1.5 kg/ha (250 baits/ha). This rate has proven successful at a range of rat abundances during periods when natural food satiation is not high.

7. When **possums** are at moderate to **high** abundance (>15% RTCI) apply **prefeed** at an average **rate** of 2kg/ha to ensure all possums access prefeed before it is eaten or stashed by other animals.

Toxic bait application

8. Apply **toxic bait** at an average **rate** of 1.5 kg/ha (250 baits/ha), unless possums are at moderate to high abundance.

9. When **possums** are at moderate to **high abundance** (>15% RTCI) apply **toxic bait** at an average **rate** of 2kg/ha (333 baits/ha). This should improve the chances of possums encountering a second bait before the onset of poisoning symptoms.

Timing – prefeed and toxic

10. **Toxic baiting** should occur no sooner than 5 days **after prefeeding** but as soon as possible after 5 days. This should allow enough time for prefeed to be fully consumed and/or cached so rodents encounter only toxic bait on the ground and not a mixture of prefeed and toxic which would allow them to compare baits and reject toxic.

11. Operations should consider **forecast weather** and logistics of both prefeed and toxic operations at the time a decision is made to go with prefeeding. Prefeed will require reasonably good weather after it has been laid with a maximum of 20mm cumulative rainfall forecast at the site over the first two nights.

12. **Toxic bait** should be available for at least 2 **fine nights** (defined as not more than 10mm cumulative rainfall over the nights) immediately following application. Application should only take place if the weather forecast indicates there is a very high probability of this. When toxic bait application will occur over more than 1 day the weather forecast will also need to indicate 2 fine nights beyond the last day of application. Analysis of operational results indicates that fine 2 nights is a sufficient interval for rats to find and consume the toxic bait while it remains in good condition (both toxicity and palatability).

13. Long delays in laying toxic bait after prefeeding can lead to rodents not being exposed to prefeed and therefore much less likely to accept and consume toxic bait in lethal

quantities. Repeating the prefeed after long delays may be necessary to achieve high kill rates.

The impact of delays on rat kill rates will depend on the rats' natural food supplies/hunger. Measuring food supplies/hunger is tricky, and a useful proxy is the rate of population growth at the time.

If rodent populations are not growing (as expected during low food conditions when operations should ideally occur), application of toxic bait within **8 weeks** of the prefeed should ensure high bait acceptance and kill rates. Seek TAG advice if there are anticipated delays beyond 8 weeks under these conditions.

If rodent populations are growing or could be growing then TAG advice should be sought if there are anticipated delays in toxic bait application beyond **4 weeks** of applying prefeed.

Planning and pre-operational tasks

14. Minimise **exclusion zones** within the block wherever possible or treat them by other methods. Untreated areas will leave survivors.

15. **Coordinate with monitoring** staff to ensure aerial application area, exclusion zones and the location of monitoring lines are compatible. If established tracking tunnel lines fall into and near un-baited areas, the data collected from them cannot be used in result analysis. Pre and post result monitoring (for rodents) should be within 6 weeks of the toxic bait application.

16. Bait quality must be high when it reaches the rat. This means taking good care of the bait from point of manufacture to point of sowing at the site. Refer to the label for advice on storage and shelf life. **Bait handling best practice** is in DOCDM-636448

17. **Calibration** trials with the correct bait size are required to determine the appropriate bait sowing swath width of each individual bait bucket used. The appropriate **flight path spacing** for your operation is determined by the effective swath width of the bucket used minus 20 metres. Flight path spacing should be stated in the Helicopter Statement of Works. See guidelines for bucket calibration for more information DOC-2827796.

    Analyses of all past operations suggest that where flight path spacing is 90% of calibrated useable swath, we get better results. A minus 20m standard is pragmatic to apply. For example, a 160m flight path spacing is close to 90% of a 180m swath. Such an overlap reduces the likelihood of gaps in bait coverage due to wind or bucket swing which would not be mapped by GPS recording.

18. The ideal **bucket design** should:
    - Produce a consistent swath pattern and constant rate of spread whether full or near empty.
    - Be a purpose-built bait bucket, and use a spinner specifically designed for distributing cereal pellets.
    - Have a proven, reliable system for the pilot to start & stop bait sowing (e.g., bucket on/off switch is interfaced with the GPS system) which minimises the risks of bait gaps undetectable in the GPS data and sowing bait outside the treatment area.
    - Have an agitator to maintain constant flow of baits going into the spinner.

- Be easy to clean with no places for 'stray' baits to collect and accidentally drop outside the treatment area.
- Have an easy to open and secure cover for use when the loading site is outside the treatment area. This prevents bait loss out of the top of the bucket when flying outside the treatment area.

19. **Spare buckets** and associated equipment should be available on site during the operation to minimise downtime due to blockage or breakdown.

20. Someone with expertise in GIS and knowledge of how flight paths are flown must be present throughout bait application. It is essential to **download and check bait coverage** regularly throughout the operation (e.g., during pilot rest breaks) to identify gaps in bait coverage or over-sows requiring further action.

21. Use available **guidance** on choosing and setting up a **helicopter loading site** DOC-1560571 to ensure safe and efficient operation of the loading site.

Bait application days

22. Use available **guidance** on **managing aerial baiting operations** DOC-2651365 to ensure bait is applied correctly and necessary data is captured.

23. **Avoid gaps** in coverage. Total bait coverage is required to achieve high rat kills because gaps allow rats to avoid treatment.

24. **Avoid** baiting in **gusty winds** where possible. Accurate bait application is achieved in average wind speeds up to 20 km/h (11 knots). Operating in higher winds may be necessary as trade-offs are made between present and forecast weather conditions and seasonal timing of the operation. In higher winds bucket swinging and bait drift can result in gaps in the coverage or risk bait being applied beyond treatment boundaries. Maintaining a steady ground speed (which affects sowing rate) can be more difficult with headwinds/tailwinds.

25. Maintaining **constant ground speed** is critical to achieving consistent sowing rates.

26. Lower **flight height** that can be achieved safely and reasonably will reduce the risk of leaving gaps. Discuss with pilot. Wind affects where bait lands, this effect is greater when bait is sown from higher, despite it looking better on the GPS.

Glossary

Terms used in the text of this document are defined here. These definitions are extracted from Animal Pests SOP Definitions and FAQs DOCDM-51708 where a more comprehensive list of definitions can be accessed.

Aerial application area	The area over which bait is to be aerially applied. This is the shape file given to the pilot to be flown. May have exclusion zones or no fly zones within its perimeter. It doesn't include the areas of the buffers.

Aerial application boundary	The boundary of the area where bait is to be aerially applied. May be buffered in from the treatment area boundary.
Airspeed	The velocity of the aircraft through the air when flying.
Boundary sow	Sowing bait near and parallel to the aerial application boundary with a full swath or a deflector bucket. This technique is used to cover the ends of sow lines where there may be gaps in coverage. It can also be used to move sow lines further away from sensitive boundaries. Sometimes referred to as 'parallel sow', 'headland run' or 'boundary run'.
Bucket gate	The mechanism on the sowing bucket which controls bait flow from the hopper to the spinner. Normally this system is linked to the GPS Navigational guidance to record sow lines when the gate is open.
Buffer (aerial application)	An area where bait is not to be applied aerially, but if bait is unintentionally applied there is no breach of permission conditions, i.e. the area between the aerial application boundary and either: • The treatment area/block boundary • The boundary of an exclusion zone • The boundary of a no fly zone
Buffer zone (hunting)	The area **outside** the boundaries of the treament area from which meat for human consumption should not be procured. (The defintion from the Animal Products Notice: Specifications for Products Intended for Human Consumption is "the land situated between the boundaries of an area of land that has been exposed to poison and an area of land where it is acceptable for animals to be procured, measured as a straight line on a horizontal plane".)
Deflector bucket	A bait sowing helicopter bucket modified to only allow bait to be spread to one side of the flight line.
Exclusion zone	An area that is within the treatment boundaries of an operation, but which is excluded from the operation – i.e. no pesticides are laid within the exclusion zone.
Flight corridor	Designated area between the loading site and the aerial application area which all helicopters with buckets must use when travelling between the two.

	Corridors are generally only necessary where the loading site is outside the Treatment area but can also be identified for transiting between treatment blocks.
Flight line	Line of travel by the helicopter recorded by GPS regardless of whether or not the bucket is sowing
Flight path spacing	Distance between sow lines set as a parameter into the GPS. This distance is decided on with reference to the useable swath of the bucket being used.
Flow rate	The rate at which baits pass through the bucket apeture onto the spinner. This figure affects sowing rate. See 'Guidelines for aerial 1080 baiting#1 Bucket calibration' DOC-2651373 for further detail on how it is measured.
Ground speed	The velocity of the aircraft over the ground. This figure affects sowing rate.
Maximum swath	Identified during bucket calibration, this is the maximum distance baits are thrown at right angles to the flight line multiplied by 2. See 'Guidelines for aerial 1080 baiting#1 Bucket calibration' DOC-2651373 for further detail on how it is measured. This figure is used to determine flight paths near boundaries.
No fly zone	An area where aircraft may not traverse with a bait bucket. This may be because of a consent condition, consultation agreement or as an operational planning decision.
Over fly	Fly a helicopter with a bucket attached below 500 feet over areas specified in the Treatment Area map as No-Fly zones. This includes flying outside designated flight corridors.
Over Sow	Misapplication of bait outside the Treatment Area or into an exclusion zone
Recorded sow line	The GPS data of flight line recorded when the bucket gate is open (i.e., usually when the bucket is actually sowing bait). Recorded sow lines will be the underlying data for bait coverage maps produced by GIS Analysts.
Safe Handling Sheet	Part of the Safe Handling of Pesticides SOP used in the field to provide standards on handling pesticides and personal protective equipment.

Sensitive boundary	A Treatment Area boundary which is particularly important to avoid over sowing. This could be for various reasons such as risk to livestock, a high public use area or road, relationship risk etc. Usually extra precautions are taken around sensitive boundaries such as increased buffers or trickle/deflector bucket sowing.
Site lead (aerial operations)	The person in charge of an aerial baiting operation during baiting operations. This person has decision making authority over field operations on the day(s) of aerial baiting. It can be the Operational planner, the Incident Controller, or the Air operations manager. Because these terms are not used consistently in DOC operations the term site lead has been developed.
Sow line	Parallel flight path generated by the navigational guidance GPS inside the aerial application area along which the helicopter applies (or sows) bait. Most GPS system number each line for ease of communication. See also 'Recorded sow line'
Treatment area	The area for which permission (DOC and Public Health) is sought or held to apply pesticides. This is the area entered into the DOCgis Pesticides Application and used for public notification. Treatment area boundary has a corresponding meaning.
Treatment area **(performance reporting definition)**	The area where animal pests are controlled in any one financial year. Total number of hectares, consisting of one or more treatment blocks. It could include the land covered by search effort if that effort was part of controlling them (eg for heli-hunting it means the area you cover and would shoot target species if encountered).
Treatment block	A subset of a treatment area. A treatment area is broken down into treatment blocks when blocks are physically separated **or** when different management methods are applied. Treatment block boundary has a corresponding meaning.
Trickle bucket	A bait sowing helicopter bucket modified to only allow a narrow bait swathe either side of the flight line.
Useable swath	Identified during bucket calibration, this is the distance most baits reach at right angles to the flight line (at the desired sowing rate) multiplied by 2. See 'Guidelines for aerial 1080 baiting#1 Bucket calibration' DOC-2651373 for

further detail on how it is measured. This figure is used to determine flight path spacing. Sometimes referred to as 'effective swath'.

Resource links

Aerial 1080 in kea habitat Standard Operating Procedure DOC-2612859 .

Guidelines for aerial 1080 baiting #1: Bucket calibration DOC-2827796.

Guidelines for aerial 1080 baiting #2: Managing air operations DOC-2651365 .

Guidelines for aerial 1080 baiting #3: Considerations for setting up a helicopter loading site for aerial baiting using cereal pellets DOC-1560571

Operational planning for animal pest operations SOP DOC-1488532

Target pests for aerially applied 0.15% 1080 Pellets and 0.08% 1080 Pellets: Technical advice for Battle for our Birds 2016 programme DOC- 2649524

NPCP site outcomes spreadsheet DOC-7200348

Timing of mast-response aerial 1080 in upland masting ecosystems DOC-7083017

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Document history

Amendment date	Amendment details	DOCCM	Amended by
July 2018	Updating BP	Version 1.5 DOC-2749355	s9(2)(g)(ii)
10/10/18	Approved s9(2)(g)(ii)	Version 1.5 DOC-2749355	s9(2)(g)(ii)
April 2020	Updated	Version 1.6	s9(2)(g)(ii)
6/4/21	New definition in glossary; added table of contents	Version 1.7	s9(2)(g)(ii)
5/7/21	Revised content and formatting following TAG review of latest data	Version 1.8	s9(2)(g)(ii)
15/08/22	Revised content and formatting following TAG review of latest data. Approved by s9(2)(g)(ii) Director Threats (Acting).	Version 1.9	s9(2)(g)(ii)
2 April 2024	Revised content and formatting follow TAG review of latest data.	Version 2.0	s9(2)(g)(ii)
30 June 2025	Updated bait formulations information and changed 1080 in kea habitat COP to SOP.	Version 2.0	s9(2)(g)(ii)