Fauna Management Plan

Introduction.

Following the completion of site surveys[1] to confirm the presence of absence of the fauna in this plan then the principles of this plan will be applied for habitat clearance.

The following are considered as requiring management to reduce / remove harm to Fish, birds, bats and lizards if present within the site.

Fish management.

Three artificial channels are required to be removed during the process of mining.

One, the southeastern branch bordered by forest fragments was found to have low numbers of banded kokopu and eel. To ensure that there is no loss to the local population of long fin eel (but also banded kokopu) a standard fish salvage is to be undertaken prior to the decommissioning of the drainage channel.

Fish rescue - General Requirements.

The objective of the condition is to ensure the work site is clear of fish during dewatering and bed removal. The basic principles of fish salvage are as follows:

- All relevant permits (MPI) will be obtained for the capture, holding and transfer of fish.
- As many fish as practicable will be removed from the pools and channel prior to instream channel works to reduce the risk of fish burrowing into the substrate and becoming unfishable as the channel is dewatered.
- Removal will involve passive trap netting and active removal. We advise that night spotting and netting will be the most effective procedure in the system present and that EFM is unlikely a suitable method given the substrate and flow.
- The channel to be removed should have a lower system exclusion barrier prior to fish salvage to ensure new “colonists “do not enter the channel.
- Fishing effort (the amount) will be informed by comparing results of each previous catch effort and is the responsibility of the experienced ecologist.
- Eel salvaged will be held, prior to release, separately from bully and galaxiid.
- All capture and relocation shall be completed (or supervised) by a suitably qualified person (aquatic ecologist).
- The species, number and size of all fish caught in each stage will be recorded.
- No fish will be held for more than 1 hour before being released.
- All fish will be released in the Mahinapua Creek.

1. *Until site surveys have been completed this plan should be considered as indicative. Once the surveys are completed this plan will be updated and further detail and strategies will be included as required.*

- Any pest fish found shall be removed from the catchment and disposed of appropriately and humanely.
- The Manager, Consents and Compliance, WCRC shall be advised when relocation of fish has been completed.

Nesting Bird Management.

The pasture forest fragments have a simple canopy of generally younger trees with minimal epiphytic growths, and many are pole kahikatea. The species and areas of nesting will be minimal compared to the Lake Mahinapua Scenic reserve to the south of the application area and the escarpment east of the application area. It is possible that several species could frequent the area, these could include grey warbler, tui, tom tit, fantail nesting, and shinning cuckoo.

If vegetation clearance occurs outside of the general avian breeding season i.e. August to February then no precautionary avian action is required and the species present are mobile and will remove themselves prior to disturbance. The issue of breeding interference and potentially indigenous bird death will only occur where clearance is within the breeding season.

The fragments are not habitat of highly mobile fauna as listed in the NPS IB, Appendix 2.

Where vegetation clearance is proposed to occur between August and February (inclusive) then there must be a thorough nest survey to determine if and where species are nesting. That survey must be undertaken by a suitable qualified and experienced avian ecologist.

Where nests are located in vegetation wished to be cleared there are three options.

In order of preference these are:

1. Delay clearance until the nesting has been completed, either the young fledged or the nest failed.
2. Clear around the nest but not within 20m or any tree touching the nest tree.
3. Salvage and translocate the nest.

This latter option contains substantive risk to the nest and young and may fail. If it is chosen as the course of action then failure should result in compensation, in this case by way of predator control in the rehabilitation area and eastern escarpment forest such that there is a reasonable chance other nests are successful where they may have failed due to predation.

Lizard management

The two potentially present gecko (we exclude consideration of skink given the state of the ground tier in the forest fragments) are the West Coast green gecko and the forest gecko. The West Coast forest geckos are diurnal and tend to be tree-dwelling, and favour shrubland and forest habitats, were as the forest gecko is nocturnal.

The following process and conditions come from accepted protocol of the AUP

Prior to the commencement of any vegetation removal works the Consent Holder must present to Council, information (based on industry best practice survey methods), from a suitably qualified and experienced ecologist/herpetologist employed by the consent holder and who has been approved by the council or DoC, that identifies whether there are sufficient numbers of native lizards, geckos or skinks (or both) present on site to trigger a requirement that a Lizard Management Plan (LMP) be prepared, certified and implemented.

A LMP will need to be prepared if the survey results in the detection of:

- 1 or more individuals of a threatened native lizard species or;
- 3 or more individuals of a common native lizard species.

Scouting & Rescue

The capture and relocation of lizards is also controlled by the Wildlife Act 1953 and any person undertaking such work must be certified by the Department of Conservation.

Lizards can be both nocturnal and diurnal, so it is important that spotlighting is done at night so that the nocturnal tree geckos can be captured and released. Skinks and occasionally some geckos live in ground foliage and will be captured during daytime habitat removal and using ACO's and/or pitfall trapping and physical searching etc.

The consent holder must employ a suitably qualified and experienced ecologist/herpetologist acceptable to the council, who must carry out the following actions prior to the commencement of removal of vegetation from the site:

Gecko rescue

i. spotlight for a minimum of three (check with your expert ecologist) night(s) in climatic weather conditions that the expert considers are appropriate; or

ii. undertake any other scouting/surveying method agreed with the Team Leader Compliance Monitoring.

Geckos able to be removed must be relocated to a suitable location on site.

Following the salvage process required above, if any native lizards are found to be present on site, a suitably qualified and experienced ecologist/herpetologist acceptable to the council, must be onsite to supervise any vegetation removal in order to search for and rescue any native lizards found and to relocate them to the alternative location(s) on the site.

The translocation will be to the eastern escarpment forest.

Bat management

DoC have produced an industry standard Protocols for minimising the risk of felling bat roosts (DoC 2021). The use of these protocol will depend on the outcomes of the bat survey, which is about the detection of bats and the assessment of the forest as potential bat roosts.

The protocol does not eliminate the risk to bats of death or injury because bats or active bat roosts can be missed. It seeks to at least minimise the effect.

Whenever vegetation removal is proposed in areas where bats are potentially present there is a guide to what sort of action should be undertaken.

None of the methods of inspecting roosts described below eliminates the risk of failing to identify bats when they are present. Therefore, techniques such as filling in cavities with expandable foam are not supported as a tool. This is because there is a risk of trapping bats that have not been detected within cavities. In addition, this method removes roosts from the landscape that bats are dependent on.

A tree climber may be required to check all potential bat roost features:

Step 1: Does the bat roost protocol apply to my project?	**Response**	**When**
b) Are bats present in the Project Area?	If Yes, go to step c If unknown, undertake comprehensive survey if bats are likely to be present. If no bats are present after comprehensive survey, you do not need to follow protocol.	Acoustic surveys to determine presence should be undertaken when bats are most active and environmental conditions are suitable (October 1st to April 30th)8. Surveys undertaken at other times of year are considered less reliable for determining absence.
c) Is the tree known to provide a roost location for bats? (Previous knowledge).	c) If yes, go to step 3 If no (but bats are present in the project area), go to step 2.	

Step 2. Does the vegetation proposed to be removed have potential bat roost characteristics?	**Response**	**When?**
a) Is the tree ≥15 cm DBH (Diameter at Breast Height)?	If yes, further assessment is required (2b). If no, the vegetation can be removed at any time.	Any time
b) On visual inspection, does the tree (dead or alive) have features that indicate roost potential? These features include: • hollows • cavities • knot holes • cracks • flaking, peeling, and decorticating bark • epiphytes • broken or dead branches or trunk • cavities/hollows/shelter formed by double leaders	If yes go to step 3 If unsure, further assessment is required. This may include climbing the tree. If no potential roost features are present, the vegetation can be removed at any time.	Visual inspections can occur at any time. If there are **NO** potential roost features, felling can occur at any time of year.

Step 3. Does the tree have to be removed entirely?

If yes, continue to step 4

Step 4. Are there bats currently roosting in the tree? (Follow a or b or c or a combination)	**Response**	**When**
a) Are potential features being used by roosting bats? A tree climber may be required to check all features. If roost is occupied repeat 4a another day until roost is vacated.	If yes, **THE TREE MUST NOT BE FELLED UNTIL BATS HAVE VACATED IT**. If no, the tree can be removed on the day of the tree inspection. If bats continue to use the roost, then the tree must not be cut down until the bats leave the roost. At this point re-consider again	October 1st to April 30th when the temperature is 7oC or greater at official sunset in the South Island or 10 oC or greater in the North Island
b) Is bat activity recorded at any time during two consecutive, valid survey nights preceding tree felling? At least two nights are required as it is possible for bats to enter or leave a roost without echolocating, or to not leave the roost for a night.	If yes (bats are detected), survey must continue on subsequent nights14 until no bat activity is recorded for two consecutive nights (to indicate bats have left the area) prior to felling. **OR** roost features of each tree must be visually assessed via climbing as in 3. If bat activity is consistent in the area and 2 nights with zero bat passes cannot be obtained, Go to 4c or 4a. If no bats are detected for two consecutive nights, the vegetation can be removed on the day immediately following the survey nights.	October 1st to April 30th and when conditions meet the requirements for standard ABM weather conditions (see 4b notes).
c) Are bats observed entering the vegetation? This involves watching vegetation to identify bats returning to or exiting roosts. It should only be used in combination with previous ABM monitoring (4b) (see notes 4c for method). At least two nights are required as it is possible for bats to enter or leave a roost without being detected, or to not leave the roost for a night.	If yes (bats are seen at either watch), it is a confirmed roost. Removal of a roost should be avoided to minimise effects of vegetation removal on bats. Techniques used previously to ensure previously active roosts are no longer active have included the following: Watches must continue on subsequent nights until no bats are observed entering or exiting the roost for two consecutive nights (to indicate the roost is no longer active) prior to felling. If no bats are observed entering or exiting for two consecutive nights, the vegetation can be removed on the day immediately following the survey nights.	Between October 1st and April 30th only **AND** when weather parameters meet the roost watch requirements.

Step 5. Fell the tree if no bats present		
NB: Vegetation removal must take place on the day of tree inspection or the day immediately following night surveys that confirm that there are no bats present.		
a) If you have undertaken a visual inspection of the vegetation (following step 4a, then the vegetation can be removed **ONLY ON THE DAY OF INSPECTION** and meets the valid weather conditions (defined in notes 4c) at official sunset the day prior to inspection. If you have undertaken ABM surveys or roost watches 4b or 4c the vegetation can be removed **ONLY ON THE DAY IMMEDIATELY FOLLOWING SURVEY COMPLETION** (i.e., if the survey ends in morning the tree can be felled the same day only). Trees must be inspected for signs of bats once felled and before removing from the site, if safe to do so. Follow Appendix 1 if bats are detected during vegetation removal.	When the inspection method chosen allows	

Appendix 1. If bats are detected during tree relocation or removal

People inspecting trees should be familiar with the Bat Care Advice document shown in footnote[1] and able to check/inspect tree for signs of bats once felled.

If during the felling of a tree bats are detected, felling of that tree must stop immediately if safe to do so, and DOC and an approved bat ecologist at Competency Level 2.1 must be consulted.

If bats do not fly away or are potentially injured/found on the ground, felling can only re-start once permission has been obtained from DOC after consultation with an approved bat ecologist at Competency Level 2.1.

If bats are detected once the tree has been felled**,** all further work must stop, and DOC and an approved bat ecologist at Competency Level 2.1 must be contacted. The felled tree must be thoroughly inspected by the approved bat ecologist for further bats**.**

If any bats are found on the ground or in the tree once felled, place the bat in a cloth bag in a dark, quiet place at ambient (or slightly warmer) temperature and take to a veterinarian for assessment as soon as possible. A maximum of two bats should be kept in one bag. After delivering the bat to the vet, contact an approved bat ecologist at Competency Level 2.1 in consultation with the vet and DOC (0800 DOC HOT, 0800 362 468).

Bats must be kept for three days under observation and must be kept out of torpor for this time. Additional detail is found at the links provided in this footnote23. Vets must euthanise bats whose injuries are causing suffering and are not likely to heal sufficiently to allow rehabilitation and return to the wild. The approved bat ecologist at Competency Level 2.1 and vet must consult with DOC to consider appropriate rehabilitation options where suffering is minimal and chances of return to the wild are high.

Euthanised bats or any dead bats (or bat parts) found must be handed to DOC.

[1] https://cdn.ymaws.com/www.nzva.org.nz/resource/resmgr/docs/other_resources/Bat_Care_Advice.pdf