



**BAT MANAGEMENT PLAN**

**for the**

**Waitaha Hydro Scheme**

Date: 11 July 2025

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## 1. INTRODUCTION

- 1.1 This Bat Management Plan (**BMP**) applies to Westpower Ltd's (**Westpower**) Waitaha Hydro Scheme (the **Scheme**). The **objective** of this BMP is to specify the methods and procedures that will minimise adverse effects on long-tailed bats (*Chalinolobus tuberculatus*) during the construction of Westpower's Scheme.

### Responsibilities

- 1.2 Westpower, as the Approvals holder is responsible for ensuring that the Scheme is constructed and operated in accordance with the BMP and all relevant conditions set out in the approvals. The Project Engineer is responsible for delivery of, and compliance with this BMP, liaising with the Project Ecologist - Bats, Contractor and Site Construction Manager as required. The responsibilities of the Project Engineer include, but are not limited to:
- Reading and understanding the BMP.
  - Facilitating a project start-up meeting or a pre commencement in accordance with the condition with the Project Ecologist(s), Contractor and Site Construction Manager, with the DOC liaison person invited, before vegetation removal and earthworks commence. The objective of this meeting will be to determine habitats scheduled for clearance each season, enabling forward planning and avoiding delays in the construction schedule and to confirm all pre-clearance requirements.
  - Contacting the Project Ecologist(s), Contractor and Site Construction Manager before any clearance.
  - Maintaining clear lines of communication with the Project Ecologist(s), Contractor and Site Construction Manager regarding any changes in the works schedule; and briefing new personnel about the contractor's responsibilities under this BMP.

### Scheme footprint and effects of the Scheme's construction on long-tailed bats

- 1.3 The likely use of the Scheme footprint by long-tailed bats and the potential effects of construction of the Scheme on long-tailed bats are set out in *Waitaha Hydro Scheme Assessment of Effects on Terrestrial Fauna: Bats, Avifauna and Powelliphanta Land Snails*. A high-level summary is provided below.
- 1.4 While long-tailed bat records are widespread throughout South Westland, in general they appear to be present in very small, isolated populations. Bat detection surveys undertaken in October 2006, January 2007 and November and December 2012 indicate that there is a regionally significant population of long-tailed bats in the lower/mid Waitaha Valley. Those surveys indicate that:
- 1.5 The Scheme footprint is unlikely to contain core breeding and roosting habitat:
- it is possible that bats may roost and breed in tall forest within the Scheme footprint in the vicinity of Morgan Gorge and at Kiwi Flat; however
  - large old trees, which are preferential for roosts, are much more common outside the Scheme footprint than within it; and

- it is unlikely bats would select the smaller trees within the Scheme footprint to roost when there are plentiful larger more ideal roosting trees beyond the footprint (i.e in the Kiwi Flat area).
- The river terraces below Morgan Gorge, particularly below the Macgregor Creek confluence, is likely an important foraging area for bats. No vegetation clearance is proposed in this area (it is farmland).
- Long-tailed bats likely use the Morgan Gorge as a commuting route between roost sites (presumed in Kiwi Flat area) and foraging grounds (in the braided lower river flats).

1.6 Potential adverse effects from construction of the scheme include death or injury and habitat loss or displacement. Prior to the implementation of effects management measures there is:

- a low-moderate risk of incidental harm or death during construction with a potentially more than minor effect;
- a low-moderate risk of incidental harm or death from roadkill with a minor or potentially more than minor effect;
- a low risk of loss of roosting and breeding habitat with a less than minor effect; and
- a moderate risk of noise or lighting during construction affecting breeding, roosting, commuting or foraging activities with a potentially more than minor effect.

1.7 Following the implementation of effects management measures the risk of those effects will be low or low-moderate and the level of effect will be less than minor.

## 2. METHODS TO MINIMISE INCIDENTAL HARM OR DEATH DURING VEGETATION CLEARANCE

### Identification of high and low risk potential roost trees

2.1 To avoid, as far as is practical, mortality and injuries to bats resulting from occupied bat roost trees being felled during vegetation clearance, Westpower will comply with DOC's "protocols for minimising the risk of felling occupied bat roosts" (**DOC protocol**<sup>1</sup>), except for minor variations or clarifications that reflect the context and circumstances of the Project area (being: lower quality bat habitat than its surrounds; and the local weather conditions).

2.2 The variations and clarifications are:

- in addition to the DOC protocol, an approved bat worker will identify low and high potential roost trees taking into consideration knowledge about bat activity and habitat in the area;
- low risk potential bat roosting trees can be felled at any time of the year;
- an approved bat worker can agree to perform acoustic monitoring in weather conditions that differ (but remain appropriate) for it;
- tree felling must cease only within the immediate vicinity of where a bat is detected; and

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<sup>1</sup> Version 4, 2024 approved by the New Zealand DOCs Bat Recovery Group.

- if a bat roost remains occupied after ten days, an approved bat worker, in consultation with DOC will arrange a method to shift the bats.

2.3 Before final areas of vegetation clearance are decided an authorised person accredited by DOC with Competency 3.3 as competent to identify potential roost trees will:

- survey the areas in and around likely vegetation clearance areas;
- confirm whether trees planned to be removed or limbed as part of the construction with a diameter at breast height (DBH)<sup>2</sup> greater than 15 cm are high or low risk potential bat roost trees; and
- clearly mark any trees deemed to pose a high risk as potential bat roosts.

2.4 Trees should be identified as high risk for potential bat roosts if:

- on visual inspection, the tree has any of the features typical of a bat roost as identified in the DOC protocol, including:
  - hollows;
  - cavities;
  - knot holes;
  - cracks;
  - flaking, peeling, or decorticating bark;
  - epiphytes;
  - broken or dead branches or trunk; and/or
  - cavities formed by double leaders; and
- the authorised person considers, in light of the knowledge of bat activity adjacent to and within the Scheme, and the significant mature vegetation within the immediate area which is preferred roosting habitat, that the tree is high risk for potential bat roosts. Any high-risk potential bat roost trees will be clearly marked and their location recorded on GPS. The vegetation clearance areas have been designed to minimise as practicable the number of more likely bat roost larger trees in vegetation clearance areas.

2.5 All low-risk potential bat roost trees can be felled at any time of the year without further assessment or monitoring.

2.6 The process for high-risk potential bat roosts trees is:

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<sup>2</sup> Diameter at breast height (DBH), is a common method used for measuring trees. DBH refers to a tree's diameter measured at 1.35 metres from the highest point of the ground at the tree's base. To determine diameter, measure the circumference of the tree. Divide the tree circumference by  $\pi$  ( $\approx 3.14$ ) to estimate the tree's diameter at breast height (DBH).

- all high-risk potential bat roost trees must be checked acoustically to confirm if bats are currently roosting before they can be felled;
- vegetation clearance must be supervised by a person accredited by DOC with appropriate competency levels (2.1, 3.1 and 3.3);
- high-risk potential bat roost trees can only be felled between October 1st and April 30th; and
- for large diameter high-risk potential bat roost trees (more likely to be colonial maternity roosts), clearance should be avoided where practicable during the peak breeding season of December and January.

### **Acoustic monitoring of high-risk potential bat roost trees**

- 2.7 To determine whether bats are currently roosting in any trees marked as being high-risk potential bat roost trees, those trees will be monitored acoustically with an automated bat recording detector, overnight, between one hour before sunset and one hour after sunset, for a minimum of two consecutive nights immediately before felling. Acoustic monitoring must be undertaken by a person accredited with bat work Competency 3.1. Before acoustic monitoring is undertaken the detectors should be checked for correct operation. During the monitoring period, weather conditions during the four hours after sunset must meet the following criteria, unless agreed otherwise by the approved bat worker:
- air temperature should not drop below 7°C;
  - no to light wind; and
  - no or light precipitation (light mist or occasional drizzle may be acceptable as assessed by a person accredited with bat work Competency 3.1).
- 2.8 Where a night of acoustic monitoring is lost as a result of adverse weather conditions, further monitoring must take place to achieve two consecutive nights of monitoring.
- 2.9 Acoustic monitoring data gathered during the two-day pre-felling monitoring period will be reviewed promptly on the morning that the monitoring period ends, giving sufficient time for trees to be felled before dusk.

### **Felling unoccupied high-risk potential bat roost trees**

- 2.10 If no bats are detected during two consecutive nights of acoustic monitoring with acceptable environmental conditions, or the pattern of bat call activity during the monitoring period indicates that bats are not roosting in the vicinity, within one hour of reviewing the data the approved bat worker will inform the Site Construction Manager and tree felling supervisor, that the monitored tree(s) can be felled. Once a high-risk potential bat roost tree has been approved for felling the tree must be felled before dusk of the same day. If trees approved for felling are not felled before dusk on the day felling is approved, the acoustic monitoring must be resumed and the felling approval process repeated.
- 2.11 An approved person accredited with Competency 3.1 should be on site for felling of any high-risk potential bat roost trees.

2.12 After high-risk potential bat trees are felled, they should be inspected immediately for bats or evidence of bat roosting. In the extremely unlikely event that any bats are found on the ground or in the tree once felled:

- the bats should be handled by the approved bat worker supervising tree felling operations (ideally with Competency Levels 2.1 and 3.1):
  - the bat(s) should be placed 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 i.e. that day; and
  - a maximum of two bats should be kept in one bag; and
- the Site Supervisor and local DOC office should be contacted as soon as possible after an injured or dead bat is found (if the local DOC office cannot be contacted, call DOC's after-hours telephone number: 0800 DOC HOT (0800 362 468)); and
- the approved bat worker should consult with the veterinarian and DOC (about future management of the bat(s):
  - if after consultation with the veterinarian and DOC, the bat(s) are confirmed as being healthy, the approved bat worker should return them to undisturbed forest close to their capture sites and release in early evening (at least one hour after dusk but before midnight) during suitable weather conditions with little or no rain or wind and temperatures  $\geq 10^{\circ}\text{C}$ ; and
  - dead bats, or bats euthanized, by a veterinarian, should be stored in a fridge at  $\leq 4^{\circ}\text{C}$  and taken to the local DOC office as soon as practicable;
- a review of the vegetation clearance requirements in the BMP must be undertaken by the Project Engineer, Project Ecologist(s) and Site Construction Manager in consultation with the project's bat expert and the local DOC office; and
- agreed revised requirements for avoiding killing or injuring bats must be implemented before vegetation clearance recommences.

**Table 1: Contact details for care of bats found in felled roost trees [Details to be inserted prior to the commencement of construction]**

	Contact details	Address
Local DOC office		
Local Veterinarian		

2.13 If bats are detected during tree felling, felling operations within the immediate vicinity should cease immediately if it is safe to do so:

- the local DOC office and a bat worker accredited with Competency 2.1 should be consulted; and
- felling in the immediate vicinity can only restart with the permission of the bat worker accredited with Competency 2.1, in consultation with DOC.

### **Protocols at Occupied Roosts**

- 2.14 If visual inspections or bat call activity patterns from acoustic monitoring indicate that bats might be roosting in a potential roost tree, the approved bat ecologist will inform the Site Construction Manager and tree felling supervisor, within one hour of the inspection or reviewing the acoustic monitoring data, that the affected tree(s) cannot be felled. If bats are roosting within a tree, it must not be felled, and the following actions must be taken:
- trees with roosting bats must be clearly marked and the Site Supervisor and all relevant staff briefed to ensure that the occupied roost tree is not to be felled; and
  - the trees with bat roosts must not be felled until acoustic monitoring to assess whether the roost tree is occupied by bats should be repeated until bats have vacated the roost (as above, this requires two consecutive nights of acoustic monitoring with acceptable monitoring conditions without bat activity being recorded).
- 2.15 If bats do not leave the roost after an extended monitoring period and the vegetation clearance area cannot be modified to exclude the occupied roost tree, the approved bat worker should consult with Site Supervisor and the local DOC office to decide an appropriate method to shift the bat roost.

### **3. METHODS TO MINIMISE INCIDENTAL HARM OR DEATH FROM ROADKILL**

- 3.1 Long-tailed bats are likely to use sections of the Scheme access road passing through forest above Macgregor Creek to the Power Station as commuting routes and or foraging beats. Consequently, the bats will be vulnerable to collision with vehicles using the road at night. To minimise the risk of bats being injured or killed by collision with vehicles:
- the speed limit on the access road above Macgregor creek should be 50 kph or less; and
  - during the peak breeding season (December and January), where practicable, only essential traffic should use the access road passing through forest up stream of Macgregor Creek at night (i.e. between dusk and dawn, approximately 30 minutes after sunset and 30 minutes before sunrise).

### **4. METHODS TO MINIMISE RISK OF NOISE OR LIGHTING DURING CONSTRUCTION AFFECTING BREEDING, ROOSTING, COMMUTING OR FORAGING ACTIVITIES**

#### **Minimising adverse effects of noise**

- 4.1 Where practicable, minimise traffic and construction activities and open-air blasting (outside of the tunnel) between sunset and sunrise, particularly at the Headworks area.

#### **Minimising adverse effects of lighting**

- 4.2 Where practicable managing lighting effects by:
- minimising as far as practicable construction activities and lighting, site wide, between dusk and dawn, when weka and other crepuscular/nocturnal species are more vulnerable to disturbance;
  - using lighting only where necessary (lighting only the object or area), and ensure lights emit no UV, use bulbs of 2700K or less to reduce the amount of blue light, and which are



designed to reduce light scatter (i.e. reflected downwards where practicable and shielded to minimise light spill); and

- where windows are involved (e.g. temporary contractor's facilities at the staging areas) when rooms are not in use turn off lights or close blinds or curtains on advice of the Project Ecologist.
- using the lowest intensity lighting appropriate for the task;
- using adaptive light controls to manage light timing, intensity and colour;
- using non-reflective, dark-coloured surfaces.

## **5. COMPENSATION**

- 5.1 The conditions require Westpower to provide ten annual payments of \$15,000 as a contribution to an ecosystem programme that supports regional biodiversity, commencing on construction. As addressed above this is a precautionary compensation package if a bat roost was incidentally affected.