MATAKANUI

GOLD LIMITED

Avifauna Management Plan

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Glossary

Specific terms	
AEcE	Assessment of Ecological Effects Report
AEE	Assessment of Environmental Effects Report
AQMP	Air Quality Management Plan
AMP	Avifauna Management Plan
ARAMP	Ardgour Restoration Area Management Plan
BLNVMP	Blasting Noise and Vibration Management Plan
BOGP	Bendigo-Ophir Gold Project ('the Project')
BOMP	Biodiversity Outcome Monitoring Plan
CNVMP	Construction Noise and Vibration Management Plan
DDF	Direct disturbance footprint
DOC	Department of Conservation
ESA	Ecological Study Area
EMPF	Ecological Management Plan Framework
HIMP	Habitat Impact Management Plan
LERMP	Landscape and Ecological Rehabilitation Management Plan
LMP	Light Management Plan
MPMP	Mammalian Pest Control Management Plan
MSMP	Matakanui Sanctuary Management Plan
ONVMP	Operational Noise and Vibration Management Plan
SEQE	Suitably Experienced and Qualified Ecologist(s)
WMP	Water Management Plan
General terms	
Biodiversity	The variety of life on Earth at all its levels, from genes to ecosystems, and can encompass the evolutionary, ecological, and cultural processes that sustain life
Ecology	The study of the relationships between living organisms, including humans, and their physical environment.
Habitat clearance	Earthworks and/or vegetation clearance
Site description	

Specific terms	
Ardgour Sanctuary	An area of Ardgour Station, north-northwest of the DDF, in which 38 ha of pest exclusion fencing is proposed
Ardgour Rise	A realignment of part of Thomson Gorge Road, via Ardgour Station (Ardgour Rise), planned to provide public access through to the Manuherikia Valley
Bendigo Sanctuary	An area of Bendigo Station, west of the DDF (and north of Bendigo Historic Reserve), in which 29 ha of pest exclusion fencing is proposed
Matakanui Sanctuary	Collectively the Ardgour and Bendigo Sanctuaries, comprising approximately 67 ha of pest-exclusion fenced areas.

1. INTRODUCTION

1.1. Plan objective, purpose and scope

The objective of the Avifauna Management Plan (**AMP**) is to avoid or minimise adverse ecological effects on indigenous avifauna species during construction and operation of the Bendigo-Ophir Gold Project (**BOGP**) and the purpose of this AMP is to set out the methods for achieving this objective. This AMP has also been prepared to support the Wildlife Act Approval application.

This AMP is intended to serve as the primary 'one-stop shop' for the management of effects on indigenous avifauna associated with the Project. It draws together, and cross-references, the measures applied across the full effects management hierarchy (avoidance, minimisation, remediation, offset and compensation) so that the way in which effects on birds are managed can be understood from this single document.

Consistent with this purpose, detail of avifauna rehabilitation, offset and compensation is not duplicated in this AMP but is provided in the related management plans, namely the Landscape and Ecological Rehabilitation Management Plan (LERMP), the Mammalian Pest Control Management Plan (MPMP), the Ardgour Restoration Area Management Plan (ARAMP), the Matakanui Sanctuary Management Plan (MSMP) and the Biodiversity Outcome Monitoring Plan (BOMP). For each effect, this AMP identifies the avoidance and minimisation measures delivered directly through this plan and cross-references the plan(s) in which remediation, offset and compensation measures are detailed.

Table 1 below provides a summary of habitat effects avoidance and minimisation measures for avifauna and the primary management plans relevant to each.

[Placeholder: Additional conditions relating to the application of mātauranga Māori and exercise of kaitiakitanga.]

Table 1: Summary of habitat effects management measures and management plans relevant to each.

Avifauna effects management measures	Primary management plan (s)
Before habitat impacts	
Pre-impact avifauna nest surveys (all native avifauna)	**AMP**

Avifauna effects management measures	Primary management plan (s)
Onsite construction method refinements	HIMP
Physical delineation of direct disturbance area	HIMP
During habitat impacts	
Ecological oversight of habitat clearance and clearance management measures	**AMP**, HIMP
Artificial lighting at night (ALAN) mitigations	**LMP**[1]
Noise and vibration mitigations	**ONVMP, CNVMP, BLNVMP**
Dust control	**HIMP, AQMP**[2]
Ecotoxic contaminant treatment and monitoring	**WMP**
Ecological rehabilitation of bird habitat within the DDF	
Ecological rehabilitation of habitat for avifauna and other biodiversity values	LERMP
Offset/compensation for residual adverse effects on avifauna	

[1] Light Management Plan Bendigo Ophir Gold Project, Xyst, 16 June 2026, Rev 2.0

[2] Air Quality Management Plan: Bendigo Ophir Gold Project, April 2026, Rev 3.0

Avifauna effects management measures	Primary management plan (s)
Mammalian pest management, weed management and habitat enhancement for avifauna and other biodiversity values within offset/compensation sites, including the MRZ, ARA, and the Matakanui Sanctuaries	LERMP, ARAMP and MSMP
Biodiversity outcome monitoring of avifauna to verify stated outcomes and to inform adaptive management where required	
Avifauna monitoring before and after commencement of ecological rehabilitation and offset/compensation measures within MRZ, ARA and the Matakanui Sanctuaries	BOMP

2. CONSENT CONDITIONS

MGL has proposed the following land use consent conditions as part of its application.

Condition No.	Proposed Condition	Note
54	The consent holder must implement the Avifauna Management Plan ("AMP") certified as part of the approval of the BOGP pursuant to Section 81 of the Fast-track Approvals Act 2024 (or as amended in accordance with relevant conditions), and which forms part of the consents. The objective of the AMP is to describe measures to avoid or minimise adverse ecological effects on indigenous avifauna species during construction and operation of the BOGP.	
55	To achieve the objective set out in Condition 54 above, the AMP must include, as a minimum: a. An overview of avifauna values in the BOGP Consent Area, including native bird species and their national and regional threat status, an overview of potential effects, pre-clearance survey requirements and effects management; b. A protocol for inadvertent native bird injury or death (including reference to Wildlife Approval requirements); c. A protocol for accidental discovery of Threatened species, including staff induction requirement, reporting hierarchy (including requirement to report	

	to Central Otago District Council and iwi) and data recording requirement; and d. Compliance monitoring and reporting requirements.	
	The AMP required under Condition 58 [above] must include the following specific limits and standards which BOGP activities must comply with: a. For any land disturbance activities to be undertaken during the bird breeding season (between August to March inclusive), pre-clearance surveys must be undertaken within the proposed disturbance footprint within 72Hours of the vegetation/habitat clearance, to detect the presence and location of any active native avifauna nests; b. Surveys to be undertaken by a suitably experienced and qualified ecologist(s) ("SEQE"); c. If a pre-clearance survey detects native nesting birds, the location of nests will be GPS recorded, and where birds, eggs or chicks are present, exclusion zones must be clearly demarcated and maintained until chicks have fledged, including the following setback distances as standard (unless the SEQE recommends otherwise): (i) 200 m for karearea / eastern falcon; (ii) 50 m for pipit and any other Threatened and At Risk bird species; and (iii) 30 m for other native bird species; d. SEQE to monitor the nest and confirm when chicks have fledged or the nest has failed, at which time vegetation/habitat within the exclusion zone can be cleared; e. Measures to insulate transmission lines, and to provide underground cabling where possible, and to deter falcon from collision with high fences and windows; f. Incidents of native bird injury or death to be notified to Central Otago District Council within five working days, with an investigation report to follow within 30 working days, which must include the following information:	

	(i) The cause of the incident, emergency response measures (if applicable) and the response proposed to avoid a recurrence of the issue; (ii) An assessment undertaken by a SEQE which describes any associated adverse effects; and (iii) Proposed measures to address those identified effects.	
56.	An annual Avifauna Management Compliance Report must be prepared, as part of the Annual Monitoring and Compliance Report required by Condition C12, and must include: a. Maps showing the locations of bird nesting areas; b. Information on nesting bird survey effort, avoidance procedures and fledging outcomes including the number and timing of successful fledging or otherwise; and c. Recommendations for improvements to effects avoidance and minimisation protocols (where required).	
57.	Any amendments to the AMP to be prepared by a SEQE.	

3. ROLES AND RESPONSIBILITIES

Delivery of, and compliance with, the suite of ecological management plans is the responsibility of the Environment Manager, who liaises with the Mine Manager, Suitably Experienced and Qualified Ecologist(s) (SEQE), Site Engineers, and habitat clearance and earthworks contractors as required. The Environment Manager holds overall accountability for implementation of and compliance with all ecology management plans, including this AMP.

The responsibilities of the Environment Manager include, but are not limited to: reading and understanding the ecological management plans; facilitating a project start-up meeting with the SEQE, Mine Manager, Site Engineer(s) and contractors before clearance and earthworks commence; contacting the SEQE a minimum of four weeks before any area within the DDF is scheduled for clearance; maintaining clear communication regarding changes to the works schedule; briefing new personnel on

their responsibilities under the plans; inviting mana whenua to participate in vegetation or habitat salvage and relocation so that kaitiakitanga responsibilities and cultural concerns are addressed; developing, implementing and monitoring site clearance procedures; and ensuring personnel inductions include a module on ecological effects management roles and responsibilities.

All personnel working on site are responsible for alerting the SEQE and the Mine Manager to the discovery of any potentially At Risk or Threatened avifauna not otherwise identified in the ecological management plans.

4. OVERVIEW OF VALUES, EFFECTS AND EFFECTS MANAGEMENT

4.1. Avifauna values

At least 28 species have been detected or are potentially present within the Direct Disturbance Footprint (**DDF**) and immediately surrounding landscape (Avifauna Values Assessment, RMA Ecology, 2025).

Table 2 lists the native avifauna species potentially present within the Ecological Study Area (**ESA**) with their national and regional threat status.

Table 2: Native avifauna within the Ecological Study Area

(*= detected in the DDF in surveys)

Species	Common name	National threat status[3]	Regional threat status[4]
Kārearea*	New Zealand falcon – eastern form*	Threatened, nationally vulnerable	Threatened, Regionally Vulnerable
Mātātā/Kōtātā	South Island fernbird	At Risk, declining	Regionally At Risk, eclining
Pīhoihoi*	New Zealand pipit*	At Risk, declining	Regionally Not threatened
Māpunga*	Black shag*	At Risk, relict	Threatened, Regionally Endangered

[3]. Robertson H.A., Baird K.A., Elliott G.P., Hitchmough R.A., McArthur N.J., Makan T.D., Miskelly C.M., O'Donnell C.F.J., Sagar P.M., Scofield R.P., Taylor G.A., and Michel P. (2021). Conservation status of birds in Aotearoa New Zealand, 2021. New Zealand Threat Classification Series 36. Department of Conservation, Wellington. 43 pp.

[4] Jarvie, S., McKinlay, B., Palmer, D., Rawlence, N. J., Thomas O. (2025). Regional conservation status of birds in Otago. Otago Regional Council, Otago Threat Classification Series, 2025/4

Species	Common name	National threat status[3]	Regional threat status[4]
Tauhou*	Silvereye*	Not threatened	Regionally At Risk, Declining
Miromiro*	Tomtit*	Not threatened	Not threatened (but locally uncommon)
Tōrea*	South Island pied oystercatcher*	At Risk, declining	Threatened, Regionally, Vulnerable
Kawau paka	Little shag	At Risk, relict	Threatened, Regionally Vulnerable
Tarapiroe	Black-fronted tern	Threatened, nationally endangered	Threatened, Regionally Endangered
Tarāpuka	Black-billed gull	At Risk, declining	Threatened, Regionally Vulnerable
Kāhu	Australasian harrier*	Not threatened	Not threatened
Kuruwhengi	Australasian shoveler	Not threatened	Not threatened
Korimako	Bellbird	Not threatened	Not threatened
Kakīānau	Black swan	Not threatened	Not threatened
Riroriro	Grey warbler	Not threatened	Not threatened
Tētē-moroiti	Grey teal	Not threatened	Not threatened
	Mallard x grey duck hybrid*	Not threatened	Not threatened
Pīwakawaka	New Zealand fantail	Not threatened	Not threatened
Kererū	New Zealand pigeon	Not threatened	Not threatened
Pāpango	New Zealand scaup	Not threatened	Not threatened
Pūtangitangi	Paradise shelduck	Not threatened	Not threatened
Poaka	Pied stilt	Not threatened	Not threatened
Pūkeko	Pukeko	Not threatened	Not threatened
Kōtare	Kingfisher	Not threatened	Not threatened
Karoro	Southern black-backed gull	Not threatened	Not threatened
	Spur-winged plover	Not threatened	Not threatened
Warou	Welcome swallow	Not threatened	Not threatened
Matuku moana	White-faced heron	Not threatened	Not threatened

4.2. Potential effects on native avifauna

The BOGP is expected to result in loss of up to 610 hectares of indigenous and exotic vegetation/habitat. The actual and potential impacts of the Project on native avifauna are described in the Assessment of Ecological Effects Report (**AEcE**), and in summary include:

- Habitat loss through clearance, soil stripping, earthworks and deposition of overburden, waste-rock or tailings;
- Creation of habitat edge effects and altering the composition and health of adjacent vegetation (i.e. habitat degradation) which may affect habitat suitability;
- Potential harm or injury to nesting birds, eggs or chicks;
- Ongoing disturbance effects through noise, vibration (including blasting) dust, and lighting;
- Potential risk of electrocution for kārearea/eastern falcon from transmission lines and distribution infrastructure, and to kawau paka/little shag and māpunga/black shag where those lines are near wetlands or open water;
- Direct mortality through collision, particularly for falcon, which may collide with high fences, windows, guy lines, and power lines, with towers and pylons presenting a lower risk. Nocturnally migrating avifauna, such as braided river birds (South Island pied oystercatcher, black-fronted tern, black-billed gull, banded dotterel) may potentially collide with such structures during poor weather events when visibility is low, particularly in association with disorientation and attraction induced by artificial lighting at night (ALAN). This effect has been observed in waders, and is a well-known hazard for juvenile seabirds. Exhaustion and grounding is also observed in seabirds, but a lesser risk for braided river birds, as they do not require strong winds or drop-offs to launch;
- Ongoing effects on water quality, particularly in the tailings dam, pit lakes and wetlands through sedimentation or contamination/ecotoxicity.Vegetation removal during the breeding season (August to March inclusive) could result in adverse effects on indigenous birds, most importantly kārearea/eastern falcon and pīhoihoi/pipit. Breeding birds could lose adults, eggs or chicks that are present in areas where vegetation is cleared. New Zealand pipit generally nest in long grasses or tussock and use the BOGP site for nesting if suitable habitat is available. Kārearea/ eastern falcon do not build nests but make a scrape on the ground, under a rocky outcrop into which they lay eggs.

4.3. Proposed effects management

Effects on native avifauna have been avoided or minimised to the extent practicable through:

- General refinement of the DDF through detailed design and construction methodology where possible and as detailed in the Assessment of Environmental Effects (**AEE**) and AEcE reports;
- Habitat impact protocols to minimise the potential for effects outside the disturbance footprint HIMP;
- Bird surveys to confirm the locations of nesting native birds;
- Nest protection protocol during bird breeding season from August – March inclusive; and
- Measures to manage indirect and operational effects associated with insulate transmission lines, and to provide underground cabling where possible, as set out in the Aurora Standards (AE-NR01-S).
- Measures to avoid or minimise indirect and/or effects associated with mine operations including:
    - Electrocution
    - Collisions
    - Ecotoxicity (mine-related water bodies)
    - Noise and vibration
    - Lighting
    - Vehicle movements
    - Dust
- To address residual adverse effects on avifauna that cannot be avoided or minimised, measures to remedy, offset and compensate for effects are set out in the relevant management plans including:
    - The Landscape and Ecological Rehabilitation Management Plan (**LERMP**)
    - The Mammalian Pest Management Plan (**MPMP**)
    - The Ardgour Restoration Area Management Plan (**ARAMP**)
    - The Matakanui Sanctuary Management Plan (**MSMP**)

These plans detail the location, type and magnitude of remediation and offset or compensation measures proposed. These measures can be broadly grouped into two key management approaches: habitat enhancement and mammalian pest control.

Additionally, the approach for monitoring the outcomes of effects management for avifauna is set out in the Biodiversity Outcome Monitoring Plan (**BOMP**).

5. PROTOCOLS TO AVOID OR MINIMISE ADVERSE EFFECTS

5.1. Protocols to manage direct effects associated with habitat clearance activities

Habitat clearance protocols to further avoid or minimise effects on avifauna habitat are detailed in the **HIMP** and include the following:

- Where feasible, the construction footprint will be refined to further avoid or minimise effects on habitats and species, particularly by reducing the footprint along edges where pre-surveys detect high local biodiversity values and impacts can be avoided through micro-siting.
- The direct disturbance footprint (DDF) will be physically delineated before habitat impacts to prevent incidental vegetation loss beyond the footprint, and this delineation will be checked for integrity at the time of clearance.
- Prior to clearance, sediment and erosion control measures will be deployed to protect downstream wetlands and streams from water quality effects, with the area and duration of soil exposure minimised as set out in the ESCMP (2025).

The following protocols will be undertaken to avoid or minimise effects on all nesting native bird species within the DDF:

- Bird nest surveys will be undertaken during bird breeding (August to March) by **the SEQE within** 72 hours of vegetation/habitat clearance within any given location. The purpose of these surveys is to confirm that no native nests that include breeding adults, eggs or chicks are present within the disturbance footprint.
- If no active nests are found, vegetation and habitat within the surveyed area may be cleared.
- If native nesting birds are detected within the disturbance footprint, the following protocols will be implemented:
  - The location of the nest will be recorded using GPS.
  - If indigenous breeding birds, eggs or chicks are present, then habitat clearance within the following exclusion setbacks must be halted until chicks have fledged:
    - within 200m for kārearea/eastern falcon
    - within 50m for pipit and other Threatened or At Risk bird species (see Table 2 above).
    - within 30m for any other native species.

  These setback distances may be altered depending on the recommendations during site surveys by the SEQE.

- The exclusion setback zone is to be marked clearly with temporary cordoning to ensure personnel do not disturb the birds.
- The SEQE is required to monitor the nest and confirm when chicks have fledged and vegetation/habitat within the exclusion zone can be cleared. Monitoring can increase the risk of desertion or predation, particularly for pipit. Low-impact monitoring methods will be employed to keep monitoring nest disturbance to an absolute minimum. This may include the use of trail cameras and/or vantage-point monitoring.

5.2. Protocols to manage indirect or operational effects

In addition to the avoidance and minimisation measures above, the following sets out how the operational and indirect effects on avifauna identified in the AEcE are managed.

5.2.1. Electrocution

The principal electrocution risk from new transmission and distribution infrastructure, is to kārearea/eastern falcon, and potentially to māpunga/black shag and kawau paka/little shag where infrastructure is located near wetlands or open water. New power lines associated with the Project will be designed to bird-safe (raptor-safe) standards, with conductors and hardware insulated or spaced to avoid simultaneous contact; all cabling will be placed underground where possible, as set out in the Aurora Standards (AE-NR01-S). The location, specification and as-built confirmation of these measures will be recorded and reported through the compliance monitoring process.

5.2.2. Collision

Electrical lines present a significant collision risk to avifauna, particularly at times of low visibility, and where they span valleys or are located near wetlands or water bodies where flight paths are more likely to exist. Electrical transmission tower and substation strike risk is lower, due to the higher visibility of these features. Falcon, SIPO, black shag and little shag are the main species of concern. This risk is avoided through undergrounding of all transmission lines onsite/associated with the project.

High fences, towers, and buildings can increase collision risk, especially when associated with lighting installations. During poor visibility conditions, migratory birds may potentially become disoriented and enter an attraction loop around illuminated structures. Mitigations employed will include identification of high risk structures during detailed design, and installation of marking devices to increase visibility of these structures to avifauna. Lighting mitigations are described below.

5.2.3. Ecotoxicity (mine-related water bodies)

Birds may be exposed to contaminants where they access on-site water bodies, including the pit lakes, the TSF decant pond and other mine-related waters. Contaminants of potential concern identified for these waters include nitrogenous compounds, sulfate, metals and metalloids (including arsenic), cyanide, pH and turbidity. Avoidance and minimisation of avifauna exposure is delivered primarily through the Mine Impacted Water Management Plan and associated water-quality controls, which this AMP cross-references. The Pre-Feasibility Study identifies arsenic stabilisation and cyanide destruction treatment as key measures for reducing potential contaminant risks to avifauna associated with the tailings storage facility and pit lakes[5]. A cyanide destruct circuit (INCO process) is being installed at the process plant to reduce cyanide levels in tailings to less than 50pmm, the level set by the International Cyanide Management Code (ICMC) to avoid potential effects on water birds at the TSF. An arsenic stabilisation circuit is being installed at the process plant that mixes Ferric Chloride with tailings. The small amount of free arsenic in the tailings is converted to ferric arsenate, a stable, low solubility solid, effectively removing arsenic from the pond on the TSF.

In addition, this AMP provides for: (i) monitoring of bird use of mine-related water bodies; (ii) deterrence and/or exclusion measures to reduce bird access to waters that exceed relevant guideline values for the protection of wildlife (for example, livestock/poultry drinking-water guideline values); and (iii) reporting of any contaminant-related morbidity or mortality through the incident reporting process. An assessment of ecotoxity risks to avifauna is to be prepared by a suitably qualified and experienced ecotoxicologist.

5.2.4. Noise and vibration

Blasting is expected approximately 4–5 times per week, generating peak noise levels of up to 114 dB L_{Zpeak} at 1 km and 90–100 dB L_{Zpeak} out to 4 km, and ground vibration of around 2 mm/s out to approximately 2.7 km. For birds, this disturbance can reduce breeding success, interrupt communication, temporarily displace individuals, and alter flight behaviour near the site, including movements to and from the Bendigo Wetland.

[5] Bendigo Ophir Gold Project – Updated Pre-Feasibility Study, Santana Minerals Limited,1 July 2025.

Management measures include monitoring of breeding outcomes for kārearea/falcon and pīhoihoi/pipit within the potential disturbance area through the biodiversity outcome monitoring programme. Potential effects on the high avifauna values at the Bendigo Wetland (8.5 km west) are addressed through separation distance.

5.2.5. Light

Artificial light at night has the potential to affect crepuscular and nocturnal birds and migratory birds, including those moving to and from the Bendigo Wetland or the Clutha River.

Lighting effects are managed through measures recommended in the Light Management Plan, the Outdoor Lighting Report and the Lighting / Dark Sky conferencing outcomes, including

- adopting *Environmental Zone A1 – Dark* based on ambient light conditions for relatively uninhabited rural areas (including terrestrial, marine, aquatic and coastal areas) and roadways without streetlighting through rural areas.
- Use of low-output, warm-coloured (≤3,000 K) LED lighting for the majority of lighting (estimated 5% 4000K or over);
- Building downward oriented and screened lighting fixtures that limit horizontal and vertical light spill;
- Directional (aimed away from external locations) and shielded fixtures for plant and infrastructure areas; and
- automated timing, dimming and motion-sensor controls to reduce unnecessary luminance (except task-specific lighting where there is a health and safety requirement for neutral daylight or high colour rendering properties).

This AMP cross-references those measures and provides for monitoring of their implementation.

5.2.6. Vehicle movements

Vehicle and machinery movement on site and on upgraded roads presents a risk of disturbance and of road-kill, particularly for ground-using species such as pipit and for falcon. Management measures include speed limits on site and on haul roads; driver inductions covering the possibility of birds on or beside roads; restricting night-time vehicle movements where practicable; and recording and reporting of any bird strike through the incident reporting process so that recurring risk locations can be identified and addressed.

5.2.7. Dust

Earthworks, haulage and blasting generate dust that can degrade vegetation and habitat condition and reduce foraging quality adjacent to the disturbance footprint. Dust is managed through the Project dust controls (for example stabilising exposed surfaces, progressive rehabilitation, watering of haul roads and exposed surfaces, and management of dust-generating activities in high-wind conditions including reducing speed and reducing drop heights) as detailed in the Air Quality Management Plan and the HIMP. This AMP cross-references those controls, which serve to limit habitat-degradation effects on avifauna outside the disturbance footprint.

5.3. Ecological rehabilitation

As set out in the LERMP, ecological rehabilitation will be implemented across all available areas within the DDF (approximately 480 ha), excluding the majority of the two permanent pit lakes, the pit walls, permanent infrastructure (roads and tracks , and the Ardgour Terraces (subject to agricultural pasture rehabilitation). The rehabilitation programme will re-establish a mosaic of indigenous habitats that provide foraging, nesting, and refuge resources for native avifauna:

- Re-establishing four indigenous terrestrial vegetation communities that support a range of native birds: native scrubland (230 ha) and taramea herbfield and shrubland (2 ha), providing cover and food for shrubland species; native tussockland (222 ha) and up to 19 ha of cushionfields (experimental), offering habitat for ground-dwelling, open-country birds.
- Re-establishing indigenous wetland communities totalling 7.5 ha that will benefit wetland and water-associated birds, comprising at least 2 ha of swamp wetlands (including 0.5 ha of open water valuable for waterfowl and wading species) and 4 ha of marshlands on the TSF, along with smaller areas of marsh/swamp wetland in Shepherds Creek (1 ha).

Together, these restored terrestrial and wetland communities will in the long-term re-instate the extent and connectivity of habitat available to native avifauna across the site.

5.4. Compensation

Proposed offset and compensation measures include ecological restoration and habitat enhancement across 2,219 ha within the ESA surrounding the mine footprint, driving a large-scale transition from exotic- to native-dominated ecosystems. For avifauna, these measures are expected to improve habitat values through both improved habitat quality and reduced pressure from key predators. Habitat restoration

will be supported by extensive weed and control or elimination of key avifauna mammalian predators. The programme comprises:

- The 889 ha MRZ adjacent to the DDF, enhanced through native enrichment planting, livestock management, mammalian pest control and weed control, improving habitat quality for birds.
- The 1,263 ha Ardgour Restoration Area (ARA), where ecological uplift via native planting, livestock management, pest and weed control, and habitat enhancement within selected EMUs will benefit avifauna across currently grazed land.
- Approximately 67 ha of predator-exclusion fenced sanctuaries (38 ha Ardgour and 29 ha Bendigo), offering the greatest avifaunal gains through predator-proof fencing and the subsequent eradication of mammalian predators.

Implementation will be guided by the LERMP, ARAMP, and MSMP and accompanied by clear, enforceable and measurable conditions of approval.

6. INADVERTENT NATIVE BIRD INJURY OR DEATH

The following steps will be implemented if any injured or dead native nesting birds are found during vegetation clearance or operation activities per Wildlife Act Authority Permit:

- The SEQE will notify the Grantor at the earliest opportunity within 24 hours after an injured or dead bird is found.
- If the Grantor requests it, any dead native bird of a Threatened, At Risk, or Data Deficient species shall be sent to a Wildlife Postmortem Service for necropsy.
- The body is to be chilled if it can be delivered within 24 hours, or frozen if longer than 24 hours to deliver.
- Appropriate measures shall be undertaken to minimise further bird deaths.
- Injured native birds found during vegetation clearance operations will be taken to a suitably qualified vet as soon as possible for assessment and treatment. Injured birds will be wrapped in a cloth or towel and kept in an appropriate portable enclosure (i.e., a clean, well-ventilated plastic container) under the direction of the SEQE to ensure the animal is handled appropriately until the native bird(s) can be assessed and treated.
- Native birds assessed by the vet or alternative specialist as uninjured, or otherwise in suitable condition for release, will be transported back to site and released into non-impacted habitat suitable for the species being relocated.

- Euthanasia of an injured native bird shall only be undertaken under direction from Department of Conservation (**DOC**) or a suitably qualified vet.

7. ACCIDENTAL DISCOVERY PROTOCOL (THREATENED SPECIES)

As part of site inductions, all contractors and staff will be made aware of the possibility of the 'Threatened' and 'At Risk' native bird species being present and will be supplied with photographs of these birds and their nests, so they know what they look like.

Contractors and staff will also be briefed regarding the accidental discovery protocol and all personnel are responsible for notifying their supervisor upon the discovery of any 'At Risk' or 'Threatened' bird or bird nest, on the same working day as the discovery. The supervisor will inform the SEQE or Environment Manager either of whom will then contact the SEQE. The SEQE will then verify the observations or qualify them with a note regarding the certainty of the identification.

Any 'At Risk' or 'Threatened' species not otherwise identified in this management plan will be reported to the DOC Local Area Manager and iwi by the SEQE. All discoveries are to be recorded in a database with an incident register and log of actions taken for each discovery.

If additional regionally or nationally 'At Risk' or 'Threatened' species not addressed by this AMP are discovered at any stage in the lifetime of the project, these species will be incorporated into this AMP.

8. TARGETS, THRESHOLDS, TRIGGERS AND CONTINGENCY (ADAPTIVE MANAGEMENT)

Biodiversity outcome monitoring for avifauna is intended to verify the stated outcomes for birds and to inform adaptive management and/or contingency measures where required. To support this, the measurable outcomes (targets) for avifauna, and the triggers and contingency actions that apply if those outcomes are not being achieved, are set out below and detailed further in the BOMP.

The adaptive management framework for avifauna comprises:

- **Stated outcomes / targets:** the expected outcomes for each species or species group, together with the metrics used to measure them (see Biodiversity outcome monitoring below). The stated outcomes for avifauna are described in the AEcE; the specific targets and metrics for verifying them will be finalised in the BOMP and itemised in the consent conditions;
- **Thresholds / triggers:** pre-defined levels of performance (for example occupancy, relative abundance, or mammalian predator-tracking indices) which, if not met within a specified timeframe, trigger investigation and response;

- **Contingency actions:** the management responses available if a trigger is reached, which may include increased or modified pest control (including adaptive management for mice), modification of habitat or wetland management, additional deterrence or exclusion measures, or other measures identified in consultation with the Biodiversity Advisory Group; and
- **Review and reporting:** reporting of monitoring results against targets, and review of the triggers and contingency actions, through the annual reporting process and the BOMP.

It is acknowledged that a number of the effects management measures relied on for avifauna outcomes (including habitat re-creation and sustained predator control) are challenging in this dryland environment and depend on a high level of expertise, resourcing and management over the long term. The targets, triggers and contingency actions above are intended to manage this uncertainty by enabling early detection of under-performance and a defined response.

9. BIODIVERSITY OUTCOME MONITORING

The detailed design of biodiversity outcome monitoring for avifauna is set out in the Biodiversity Outcome Monitoring Plan (BOMP); this section summarises the purpose and key elements relevant to avifauna and cross-references the BOMP for the full methodology.

Biodiversity outcome monitoring is distinct from the compliance and incident monitoring described below: its purpose is to measure ecological outcomes for birds over time, to verify the stated outcomes, and to inform adaptive management and/or contingency where required.

The avifauna biodiversity outcome monitoring programme, as detailed in the BOMP, will specify:

- **Metrics:** the measures used to assess outcomes for avifauna (for example species occupancy and distribution, relative abundance and encounter rates, breeding occupancy and success for key species such as falcon and pipit, and community composition), including baseline (before) and post-implementation (after) measurement;
- **Stated outcome targets:** quantified targets against which monitoring results are assessed, consistent with the targets and triggers in the section above and the consent conditions;
- **Methods:** standardised, repeatable survey methods, including the use of automatic recording devices (ARDs) to improve detection of cryptic, nocturnal and wetland species (for example bittern, fernbird and marsh crake), alongside conventional count methods, applied before and after commencement of

ecological rehabilitation and offset/compensation within the MRZ, ARA and Matakanui Sanctuaries;

- **Frequency, location and analysis:** the timing, sites and analytical approach used to detect change and attribute it to management; and
- **Reporting and response:** reporting of results against targets and linkage to the adaptive management triggers and contingency actions above and in the relevant management plans.

10. COMPLIANCE MONITORING AND REPORTING

Compliance or incident reports described in this section will be submitted to Council.

10.1. Annual avifauna management compliance report

The annual avifauna management compliance monitoring report shall detail the year's activities from 1 September to 31 August and shall be submitted in November of each year. It shall include:

- Overview maps showing the location of nesting birds
- Information on nesting bird survey effort, avoidance procedures and fledging outcomes including the number and timing of successful fledging or otherwise.
- Recommendations for improvements to effects avoidance and minimisation protocols (where required).

10.2. Incident monitoring and reporting

The Regulator will be notified as soon as practicable but no more than five working days after an unscheduled event resulting in injury or death to nesting birds.

A subsequent investigation report will be provided to the Regulator within 30 days and include the following information:

- The causes of the incident, the emergency response measures (if applicable), and the response proposed to avoid a recurrence of the issue;
- An assessment undertaken by a SEQE which details any adverse effects of the exceedance; and
- Proposed measures to address effects.

All incidents will be tracked to resolution through the BOGP compliance management system.