

23 July 2025

Tim Clarke  
Environmental Manager  
Brightstar Resources  
Level 2, 36 Rowland Street  
Subiaco, WA, 6008

**Re: Pre-clearance inspection for areas around Fish operations.**

Dear Tim

Terrestrial Ecosystems is pleased to provide a report on the pre-clearance search of the nominated areas around the Fish operations (Figure 1). This assessment was completed to satisfy the conditions of Clearing Permit 10822/1, listed below.

**10. Fauna management (malleefowl – non-breeding season)**

Where clearing authorised under this Permit is to occur between 1 February and 31 August, the Permit Holder shall:

- (a) Within three months prior to undertaking any clearing authorised under this Permit, the area shall be inspected by an *environmental specialist* for the presence of *Leipoa ocellata* (malleefowl) mounds.
- (b) Where *Leipoa ocellata* (malleefowl) mounds are identified in relation to Condition 10(a) of this Permit, the Permit Holder shall ensure that no clearing occurs within 50 metres of identified *Leipoa ocellata* (malleefowl) mounds, unless approved by the *CEO*.

**11. Fauna management (malleefowl – breeding season)**

Where clearing authorised under this Permit is to occur between 1 September and 31 January, the Permit Holder shall:

- (a) Within two weeks prior to undertaking any clearing, engage an *environmental specialist* to conduct an inspection of the area to be cleared to identify *active (in use) malleefowl (Leipoa ocellata) mounds*.
- (b) Where an *active (in use) malleefowl mound* is identified under Condition 11(a) of this Permit, the Permit Holder shall ensure that no clearing occurs within 200 metres of the mound, during the months of September through to January, unless first approved by the *CEO*.
- (c) Where *inactive Leipoa ocellata* (malleefowl) mounds are identified in relation to Condition 11(a) of this Permit, the Permit Holder shall ensure that no clearing occurs within 50 metres of identified *Leipoa ocellata* (malleefowl) mounds, unless approved by the *CEO*.

**12. Fauna management (pre-clearance survey - mulgara)**

- (a) Within two weeks prior to undertaking any clearing authorised under this Permit, the Permit Holder shall engage a *fauna specialist* to undertake *clearance surveys* for mulgara (*Dasymercus* species).
- (b) Where sandhill dunnart, mulgara and/or great desert skink burrows are identified under Condition 13(a), the Permit Holder shall engage a *fauna specialist* to determine if the burrow is occupied.
- (c) Within two weeks prior to undertaking any clearing authorised under this Permit, the Permit Holder shall engage a *fauna specialist* to relocate any mulgara found under Condition 13(a) and 13(b) of this permit.
- (d) The Permit Holder shall engage a fauna spotter to traverse the project area ahead of clearing machinery, at the time of clearing and alert machinery operators to avoid mulgara injury or mortality.
- (e) Where any mulgara are identified and relocated under Condition 13(a), 13(b), 13(c) and 13(d) of this Permit, the Permit Holder shall include the following in a report submitted to the *CEO*.



**Figure 1. Searched project area**

Terrestrial Ecosystems' staff have completed numerous pre-clearance inspections, fauna surveys, and fauna assessments in the region and are familiar with the habitats and fauna expected in the project area.

### **Malleefowl (*Leipoa ocellata*)**

Malleefowl is listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999) and *Biodiversity Conservation Act 2016* (BC Act 2016).

Malleefowl are large, ground-dwelling birds that rarely fly unless alarmed or are perching for the night. Historically, Malleefowl have been found in mallee regions of southern Australia from approximately the 26th parallel of latitude southwards. Before vegetation clearing for agriculture, Malleefowl were abundant in the WA Wheatbelt and many areas to the east. Vegetation clearing for agriculture also opened adjacent bushland to predators. In the southwest of WA, Malleefowl often now only persist in isolated remnant patches of native vegetation, particularly in the Goldfields.

Malleefowl build distinctive nests that comprise a large mound of soil/rock covering a central core of leaf litter. These nest mounds range in diameter but span more than five metres and may be up to one metre high. Malleefowl are generally monogamous, and once breeding commences, they pair for life. The terrestrial activity of Malleefowl and building their mounds on the ground means that the birds, their eggs, and newly hatched chicks are vulnerable to foxes, cats, and raptors. The presence of active or recently active nest mounds provides a good indication of the presence of Malleefowl in an area.

The preferred habitat for Malleefowl is shrubs and thickets of mallee *Eucalyptus* spp., *Melaleuca lanceolata*, *Acacia linophylla*, and any other dense litter-forming shrublands, however, they are also found in a diverse range of habitat types (Johnstone & Storr, 1998).

The National Recovery Plan for Malleefowl (Benshemesh, 2007) lists vegetation clearing, habitat fragmentation and isolation, sheep grazing, predation by foxes, and, to a lesser extent, cats, raptors, wild dogs, bushfires, and climate change as the primary threats to the survival of this species. Conservation and preservation strategies are focussed on habitat protection, in particular, the use of conservation reserves (e.g. Australian Wildlife Conservancy's reserve at Mt Gibson, and Bush Heritages reserves at Eurardy and Charles

Darwin), improved fire management, fencing to contain sheep or exclude them from remnant vegetation in agricultural lands, habitat regeneration and improved connectivity, reducing goats and predator control (Benshemesh, 2007).

The potential presence of Malleefowl in mining, exploration, or infrastructure areas requires that the company manage threats to avoid, minimise, and mitigate potential impacts. This bird has been recorded in the adjacent areas and broader region, however, there was no evidence it was in the project area.

### **Southern Whiteface (*Aphelocephala leucopsis*)**

Southern Whiteface is Vulnerable under the *EPBC Act 1999* and *BC Act 2016*.

The Southern Whiteface is a small, distinctive bird with a thornbill-like appearance. It has a dark crown, extending from the forehead to the nape, and a white face. The upperparts are predominantly brownish-grey, and the underparts are white. There are two recognised subspecies of Southern Whiteface; *A. l. leucopsis* (south-eastern southern whiteface) which is found throughout south-eastern and central Australia, and *A. l. castaneiventris* (south-west southern whiteface) found in central and southern regions of Western Australia (Department of Climate Change Energy the Environment and Water, 2023). The subspecies have overlapping ranges and hybridize in overlapping areas.

The movements, home range, and social structure of Southern Whiteface are poorly understood. Some consider it sedentary, however, records indicate that birds will move locally to new areas, particularly in drought years (Higgins & Peter, 2002). Craig and Moore (2020) recorded this bird being present and absent during surveys near Bungalbin in Western Australia, suggesting it was mobile, probably with a shifting activity area. In multiple surveys near Laverton, there was evidence of shifts in its activity area (Terrestrial Ecosystems, 2024).

Its geographic distribution covers a wide range of habitat types. Acacias and Eucalypts usually dominate these habitats and consist of open woodlands and shrublands on ranges, foothills, lowlands, and plains (Higgins & Peter, 2002). It forages on the ground, feeding on insects, spiders, and seeds found on bare ground or in leaf litter (Antos & Bennet, 2006; Higgins & Peter, 2002).

Critical habitat for this species is considered to be relatively undisturbed open woodlands and shrublands with an understorey of grass or shrubs near areas of low tree densities with a herbaceous understorey for foraging habitat and living and dead trees with hollows and crevices, which are needed for roosting and nesting (Department of Climate Change Energy the Environment and Water, 2023).

The conservation advice for the Southern Whiteface lists habitat loss as one of the major threats to the species, particularly on the east coast of Australia (Department of Climate Change Energy the Environment and Water, 2023). The breeding season is July-October, however in arid regions rainfall can affect breeding timing. The Southern Whiteface was not recorded during the site inspection in July 2025.

### **Brush-tailed Mulgara (*Dasymercus blythi*)**

Brush-tailed Mulgara is listed as a Priority (P4) species by the Department of Biodiversity, Conservation and Attractions.

Mulgara are small carnivorous marsupials native to the arid interior of Australia. There are two extant species; Brush-tailed and Crest-tailed Mulgara. They inhabit spinifex vegetated areas throughout the Pilbara, Northern Goldfields, and Murchison. Within this distribution, they heavily favour sandy spinifex plains, typically consisting of large spinifex hummocks, which suggests long, unburnt landscapes. They are nocturnal, sheltering within burrows during the day. Burrows vary in complexity, with some having a single entrance, while others can have up to 10 entrances. Thompson and Thompson (2007) indicated that burrows in the Pilbara contained between two and nine entrances, and tunnels were primarily located on a single level, with a depth of ~300mm. Burrow entrances are described as an arch over a flat bottom, roughly 50-70mm wide. Their diet includes insects, arachnids, and rodents as the main prey, with reptiles, centipedes, and small marsupials less frequent prey items. There was no evidence of Mulgara in the project area.

### **Sandhill Dunnart (*Sminthopsis psammophila*)**

Sandhill dunnarts are listed as Endangered under *EPBC Act 1999* and *BC Act 2016*.

The Sandhill Dunnart is a small, nocturnal, carnivorous marsupial. The species has a scattered and highly fragmented distribution across the arid interior of Australia. They live in semi-arid and arid areas of southern central Australia, preferring areas with east-to-west, yellow, pale orange or white sandy soils, sand dunes, and dominated by long unburnt spinifex hummock grasslands (Threatened Species Scientific Committee, 2015). Nests are typically made within the centres of large spinifex hummocks, especially ring-forming varieties, however, females have been known to dig burrows. Males tend to use a variety of sheltering opportunities, such as fallen logs or burrows of other species. Sandhill Dunnarts are primarily opportunistic insectivores but may occasionally predate on small skinks and mice. The habitat in the project area is not suitable for Sandhill Dunnarts.

### **Great Desert Skink (*Liopholis kintorei*)**

The Great Desert Skink is listed as Vulnerable under *EPBC Act 1999* and *BC Act 2016*.

The Great Desert Skink is a large burrowing skink found in the sandy and gravelly habitats of the central and western deserts. It lives in social colonies where young breeding males disperse to adjacent colonies, although the dispersal distance is poorly understood (Ridley, 2015). Colonies consist of up to 10 individuals in subterranean burrow networks that are up to 10m in diameter (Ridley et al., 2020). The burrow system may have a single or multiple entrances. Long-used burrows are often large and complex. The local skink community will have established a latrine site(s), which is often quite large and visible for old burrow complexes.

The Great Desert Skink primarily lives in spinifex-dominated sandplains adjacent to dunes (Ridley et al., 2020). Pearson et al. (2001) reported Great Desert Skinks in the Gibson Desert were in an undulating sandplain of deep red sands with a surface cover of fine laterite and vegetated with spinifex grass. Habitat critical to their survival is typically hummock grass sandplains and some adjacent dune field swales, often associated with paleodrainage channels, however, they have been recorded in open Mulga woodland in South Australia (McAlpin, 2001). The habitat in the project area is not suitable for Great Desert Skinks.

### **Survey methodology**

Brody Altus conducted the pre-clearing site inspection 21-22 July 2025. The site assessment was performed on foot and all areas were searched.

### **Results**

The assessed fauna habitat primarily consisted of low eucalypts over mixed shrubland and open spinifex on sandy soils. Much of the area has been recently burnt and is open and sparsely vegetated. Many areas were degraded and had evidence of anthropogenic disturbance.

Plates 1-8 show the range of habitats in the searched areas. No Malleefowl tracks or mounds were recorded, and there was no evidence of any other species of conservation significance. As the area has been recently burnt, the spinifex hummocks were not large or dense enough to provide habitat for Mulgara or Sandhill Dunnarts.





**Plate 1. Fauna habitat**



**Plate 2. Disturbed habitat**



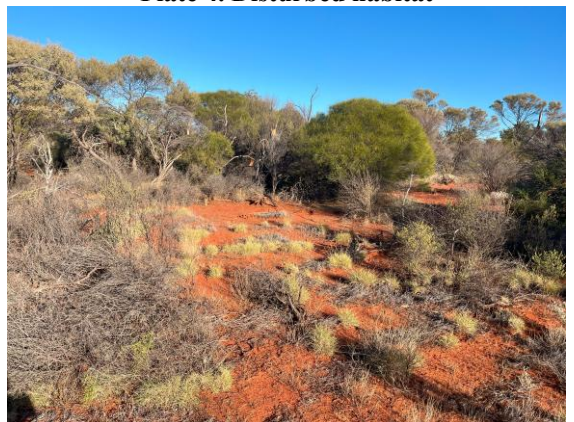
**Plate 3. Disturbance**



**Plate 4. Disturbed habitat**



**Plate 5. Fauna habitat**



**Plate 6. Fauna habitat**



**Plate 7. Fauna habitat**



**Plate 8. Fauna habitat**



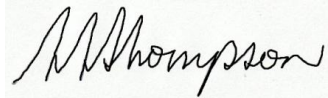
## Discussion

No vertebrate fauna of conservation significance and no Malleefowl mounds were recorded in the areas proposed for vegetation clearing and development.

As with all mining and exploration activities, Terrestrial Ecosystems encourages minimising vegetation clearing where possible so that development does not leave fragmented areas that can reduce habitat connectivity.

Please do not hesitate to contact the undersigned (0407 385 239) if you require further information.

Yours sincerely



Dr Scott Thompson  
Director and Principal Zoologist

## References:

- Antos, M. J., & Bennet, A. F. (2006). Foraging ecology of ground-feeding woodland birds in temperate woodlands of southern Australia. *Emu*(106), 29-40.
- Benshemesh, J. (2007). *National Recovery Plan for Malleefowl*. D. f. E. a. Heritage.
- Craig, M. D., & Moore, G. I. (2020). The avifauna of Bungalbin, Western Australia – an arid region with minimal human impact. *Australian Field Ornithology*, 37, 1-14. <https://doi.org/10.20938/afo37001014>
- Department of Climate Change Energy the Environment and Water. (2023). *Conservation Advice for Aphelocephala leucopsis (southern whiteface)*. E. Department of Climate Change, the Environment and Water.
- Higgins, P. J., & Peter, J. M. (2002). *Handbook of Australian, New Zealand and Antarctic Birds*. Oxford University Press.
- Johnstone, R. E., & Storr, G. M. (1998). *Handbook of Western Australian Birds. Volume I - Non-Passerines (Emu to Dollarbird)*. Western Australian Museum.
- McAlpin, S. (2001). *A Recovery Plan for the Great Desert Skink (Egernia kintorei) 2001-2011*. Unpublished report for the Arid Lands Environment Centre.
- Pearson, D., Davies, P. M., Carnegie, N., & Ward, J. (2001). The great desert skink (*Egernia kintorei*) in Western Australia: Distribution, reproduction and ethno-zoological observations. *Herpetofauna*, 31(1), 64-68.
- Ridley, J. C. H. (2015). *Distribution, habitat associations and activity of great desert skinks (tjakura; Liopholis kintorei) in relation to fire and vegetation cover* [BSc Honours, Charles Darwin University]. Alice Springs.
- Ridley, J. C. H., Schlesinger, C. A., & Bull, C. M. (2020). Location of long-term communal burrows of a threatened arid-zone lizard in relation to soil and vegetation. *Austral Ecology*, 45(4), 444-453. <https://doi.org/10.1111/aec.12656>
- Terrestrial Ecosystems. (2024). *Southern Whiteface assessment for the Mt Weld Rare Earths Project in 2024*. U. r. f. M. W. M. P. Ltd.
- Thompson, G. G., & Thompson, S. A. (2007). Shape and spatial distribution of Mulgara (*Dasymercus cristicauda*) burrows, with comments on their presence in a burnt habitat and a translocation protocol. *Journal of the Royal Society of Western Australia*, 90(4), 195-202.
- Threatened Species Scientific Committee. (2015). *Conservation Advice Sminthopsis psammophila, sandhill dunnart*.

## Disclaimer

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