

APPENDIX 5 – TEST OF SIGNIFICANCE (BC AND FM ACT)

Section 7.3 of the BC Act details five factors which are to be considered when determining if a proposed development or activity *'is likely to have a significant effect on the threatened species, ecological communities, or their habitats'*. These five factors must be taken into account by determining authorities when considering a development proposal or development application. This enables a decision to be made as to whether there is likely to be a significant effect on the species.

Appendix 4 found that nine threatened biota had the potential to be impacted by the proposal. Given this, further assessment by application of a general ToS was completed.

- Microchiropteran Bats (Yellow-bellied Sheathtail-bat)
- Birds (Eastern Ground Parrot, Osprey, Square-tailed Kite, Striated Fieldwren, White-bellied Sea-eagle)
- Mammals (Long-nosed Potoroo, Southern Brown Bandicoot, Spotted-tailed Quoll)

(a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Microchiropteran Bats (Yellow-bellied Sheathtail-bat)

The Yellow-bellied Sheathtail-bat is a wide-ranging species found across northern and eastern Australia. In the most southerly part of its range - most of Victoria, south-western NSW and adjacent South Australia - it is a rare visitor in late summer and autumn. There are scattered records of this species across the New England Tablelands and North West Slopes (DPE/BCS, 2023).

Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. Breeding has been recorded from December to mid-March when a single young is born. Seasonal movements are unknown; there is speculation about a migration to southern Australia in late summer and autumn (DPE/BCS, 2023).

When foraging for insects, flies high and fast over the forest canopy, but lower in more open country. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory (DPE/BCS, 2023).

DPE/BCS (2023) identify the following threats to the Yellow-bellied Sheathtail-bat:

- Disturbance to roosting and summer breeding sites
- Foraging habitats are being cleared for residential and agricultural developments, including clearing by residents within rural subdivisions
- Loss of hollow-bearing trees; clearing and fragmentation of forest and woodland habitat

- Pesticides and herbicides may reduce the availability of insects or result in the accumulation of toxic residues in individuals' fat stores.

Of these, the first threat is of potential relevance when considering the impacts of the proposal. The proposal would require the use of a helicopter to remove the steel lattice tower, which may result in the disturbance to roosting and breeding sites. However, the operation of the helicopter would occur for approximately two days (weather dependent) and would be restricted to daylight hours. Safeguards listed in Section 9 have been designed to mitigate these potential impacts.

With consideration of these factors, it is *unlikely* that the proposed activity could have an adverse effect on the life cycle of Yellow-bellied Sheathtail-bat, such that a viable local population is likely to be placed at risk of extinction.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

- (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
- (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

This species is not a listed threatened ecological community (TEC).

(c) in relation to the habitat of a threatened species or ecological community:

- (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and
 - (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and
 - (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,
- i. The proposal would not result in the removal or modification of native vegetation.
 - ii. The proposed activity would not isolate or fragment areas of habitats.
 - iii. The proposal would not remove, modify, fragment, or isolate any habitat in the locality.

(d) whether the action proposed is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

No declared areas of outstanding biodiversity value are known within the Bega Valley LGA under the BC Act.

(e) whether the action proposed constitutes or is part of a key threatening process or is likely to increase the impact of a key threatening process,

The proposed activity – lighthouse reinstatement and lattice tower removal – does not require the removal of native vegetation, and therefore is not recognised as a key threatening process (KTP) under schedule 4 of the BC Act or the FM Act.

With consideration of these factors, the proposed activity would not result in the operation of or increase the impact of a KTP.

Conclusion

This Assessment of Significance has determined that the proposed activity is ‘*unlikely*’ to have a ‘*significant effect*’ on Yellow-bellied Sheath-tail-bat, or their habitats.

(a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Birds (Eastern Ground Parrot, Osprey, Square-tailed Kite, Striated Fieldwren, White-bellied Sea-eagle)

Eastern Ground Parrot

In NSW populations have declined and contracted to islands of coastal or subcoastal heathland and sedgeland habitats. The species is found in relatively large numbers on the north coast (Broadwater, Bundjalung, Yuraygir and Limeburners Creek NPs) and in smaller numbers at Myall Lakes on the central coast. There are also large populations on the NSW south coast, particularly Barren Grounds NR, Budderoo NP, the Jervis Bay area and Nadgee NR. Small numbers are recorded at Morton and Beowa NP and other areas on the south coast. Estimated population size is about 2000 birds (DPE/BCS, 2023).

The Ground Parrot occurs in high rainfall coastal and near coastal low heathlands and sedgelands, generally below one metre in height and very dense (up to 90% projected foliage cover). These habitats provide a high abundance and diversity of food, adequate cover and suitable roosting and nesting opportunities for the Ground Parrot, which spends most of its time on or near the ground. When flushed, birds fly strongly and rapidly for up to several hundred metres, at a metre or less above the ground (DPE/BCS, 2023).

The coastal and subcoastal heathland and sedgeland habitats of the Ground Parrot are particularly fire prone. Ground Parrots can re-colonise burnt habitat after 1-2 years and reach maximum densities after 15-20 years without fire. Therefore, it is recommended that habitat be protected from extensive and intense fires (DPE/BCS, 2023).

Ground Parrots feed mostly on seeds from a large range of plant species, which varies seasonally. An individual bird may consume in the order of 8000 seeds per day from as many as 60 plant species. Other plant material and invertebrates may be ingested.

Ground Parrots breed from September to December. Breeding is thought to be triggered by increasing seed availability in spring. 2-7 eggs are laid in a shallow bowl of fine sticks and grass, well hidden under overhanging tall, coarse grass, sedge or low, heathy shrubs. The nest is usually screened from above and sides, often with a tunnel in the surrounding dense plants. The female incubates the eggs for 21-24 days and on average a pair successfully fledges 2 young per season (DPE/BCS, 2023).

DPE/BCS (2023) identify the following threats to the Eastern Ground Parrot:

- Historical loss and fragmentation of habitat through clearing for agriculture and residential developments.
- Extensive and intense fires which temporarily remove habitat.
- There is some evidence that too-frequent fire (less than every 2 years) may be a threat to the species and long fire intervals (greater than 30 years) can make habitat unsuitable.
- Psittacine Circoviral Disease (PCD) may be a potential threat.
- Dieback of heathland habitats from *Phytophthora* fungus may be a potential threat.
- Post-fire predation by foxes and cats may be a threat.

The proposal would not pose an impact in relevance to these threats.

With consideration of these factors, it is *unlikely* that the proposed activity could have an adverse effect on the life cycle of Eastern Ground Parrot, such that a viable local population is likely to be placed at risk of extinction.

Osprey

The Osprey has a global distribution with four subspecies previously recognised throughout its range. However, recent studies have identified that there are two species of Osprey - the Western Osprey (*P. halietus*) with three subspecies occurring in Europe, Asia and the Americas and the Eastern Osprey (*P. cristatus*) occurring between Sulawesi (in Indonesia), Australia and New Caledonia. Eastern Ospreys are found right around the Australian coast line, except for Victoria and Tasmania. They are common around the northern coast, especially on rocky shorelines, islands and reefs. The species is uncommon to rare or absent from closely settled parts of south-eastern Australia. There are a handful of records from inland areas (DPE/BCS, 2023).

Favour coastal areas, especially the mouths of large rivers, lagoons and lakes. Feed on fish over clear, open water. Breed from July to September in NSW. Nests are made high up in dead trees or in dead crowns of live trees, usually within one kilometre of the sea. Incubation

of 2-3 eggs, usually by the female, is about 40 days. Female remains with young almost until they fly, usually after about nine weeks in the nest (DPE/BCS, 2023).

DPE/BCS (2023) identify the following threats to the Osprey:

- Disturbance to or removal of large trees near the coast that have been or could be used as nest sites
- Disturbances to water quality, such as from the disposal of treated effluent or stormwater runoff, that increases turbidity in feeding areas
- Ingestion of fish containing discarded fishing tackle
- Potential electrocution of individuals using powerline poles for nesting
- Disturbance to active nests potentially reducing reproductive success.

Of these, the first and last threat is of potential relevance when considering the impacts of the proposal. The proposal would require the use of a helicopter to remove the steel lattice tower, which may result in the disturbance to breeding sites. However, the operation of the helicopter would occur for approximately two days (weather dependent). Safeguards listed in Section 9 have been designed to mitigate these potential impacts.

With consideration of these factors, it is *unlikely* that the proposed activity could have an adverse effect on the life cycle of Osprey, such that a viable local population is likely to be placed at risk of extinction.

Square-tailed Kite

The Square-tailed Kite ranges along coastal and subcoastal areas from south-western to northern Australia, Queensland, NSW and Victoria. In NSW, scattered records of the species throughout the state indicate that the species is a regular resident in the north, north-east and along the major west-flowing river systems. It is a summer breeding migrant to the south-east, including the NSW south coast, arriving in September and leaving by March. They occur in a variety of timbered habitats including dry woodlands and open forests showing a particular preference for timbered watercourses (DPE/BCS, 2023).

They occupy large home ranges, usually larger than 100km² in area. Breeding occurs from July to February, with nest sites generally located along or near watercourses, in a fork or on large horizontal limbs (DPE/BCS, 2023).

DPE/BCS (2023) identify the following threats to the Square-tailed Kite:

- Clearing, logging, burning, and grazing of habitats resulting in a reduction in nesting and feeding resources
- Disturbance to or removal of potential nest trees near watercourses
- Illegal egg collection and shooting.

The proposal would not pose an impact in relevance to these threats.

With consideration of these factors, it is *unlikely* that the proposed activity could have an adverse effect on the life cycle of Square-tailed Kite, such that a viable local population is likely to be placed at risk of extinction.

Striated Fieldwren

The Striated Fieldwren is found in coastal swamp heaths and tussock fields of south-eastern NSW, into southern Victoria and the south-east of South Australia. It is also found in Tasmania. There are four recognised subspecies, but only one (*albiloris*) occurs in NSW. Most records are from two main regions - the far south coast (Nadgee NR and Beowa NP) and in Morton NP (Little Forest, Tianjara Falls) though there are scattered records in between these two areas (particularly in coastal habitats) (DPE/BCS, 2023).

Mainly a bird of ground and understorey vegetation, and can be found in swampy, coastal heathlands, tussocky grasslands, low shrubby vegetation and margins of swamps. Forages by working through the undergrowth and over the ground, cock-tailed and hopping, feeding on insects and seeds. Often hops to the top of a bush to investigate any disturbance; males sing in territorial advertisement from such vantage points (DPE/BCS, 2023).

Appears to have a very long breeding season (eggs have been recorded in NSW between July and January) and in fact may raise two broods per season. Three to four eggs are laid in nests hidden on the ground under tussocks or shrubs; nests are dome-like structures constructed from coarse grasses and other fibres; the interior is lined with softer grasses feathers and down (DPE/BCS, 2023).

DPE/BCS (2023) identify the following threats to the Striated Fieldwren:

- Loss of swampy heath and tussocky habitats due to clearing for urban and agricultural development
- Heavy grazing and trampling by stock causing habitat degradation through root damage, prevention of seedling establishment and erosion
- Habitat degradation as a result of weed invasion
- Poor understanding of habitat characteristics that support the species.

The proposal would not pose an impact in relevance to these threats.

With consideration of these factors, it is *unlikely* that the proposed activity could have an adverse effect on the life cycle of Striated Fieldwren, such that a viable local population is likely to be placed at risk of extinction.

White-bellied Sea-eagle

The White-bellied Sea-eagle is distributed around the Australian coastline, including Tasmania, and well inland along rivers and wetlands of the Murray Darling Basin.

In New South Wales it is widespread along the east coast, and along all major inland rivers and waterways. Habitats are characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. May be solitary or live in pairs or small family groups consisting of a pair of adults and dependent young (DPE/BCS, 2023).

Occurs at sites near the sea or seashore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest) (DPE/BCS, 2023).

Breeding habitat consists of mature tall open forest, open forest, tall woodland, and swamp sclerophyll forest close to foraging habitat. Nest trees are typically large emergent eucalypts and often have emergent dead branches or large dead trees nearby which are used as 'guard roosts'. Nests are large structures built from sticks and lined with leaves or grass. While birds can nest at any time of the year (DPE/BCS, 2023) (often different based on distance from the equator), birds on the far south coast are known to breed between mid-June to September with young birds remaining in the nest for 65-70 days.

Feed mainly on fish and freshwater turtles, but also waterbirds, reptiles, mammals and carrion. Hunts its prey from a perch or whilst in flight (by circling slowly, or by sailing along 10–20 m above the shore). Prey is usually carried to a feeding platform or (if small) consumed in flight, but some items are eaten on the ground (DPE/BCS, 2023).

DPE/BCS (2023) identify the following threats to the White-bellied Sea-Eagle:

- Land clearing reduces the amount of suitable habitat available, and this can force birds to nest in sub-optimal habitats where their breeding success is greatly reduced. Coastal development is increasing in density and spread impacting White-bellied Sea-Eagle habitat and populations.
- The White-bellied Sea-eagle is sensitive to disturbance when nesting, especially during the early stages of the breeding season, and may desert nests and young if confronted by humans or exposed to human activity. Residential development, coastal tourism developments, and coastal land sub-divisions have been implicated in the abandonment of White-bellied Sea-Eagle nest sites.
- In coastal areas potential threats to foraging resources include: clearing, degradation or reclamation of saltmarsh, mangroves, sea grass and other riparian or shallow water vegetation resulting in loss of fish nursery habitats and food resources.
- Off-road vehicles accessing remote coastal areas, and various forms of recreation (e.g. surfing, bushwalking, rock-climbing, fishing, hunting and intrusive photography), have each been implicated in the abandonment of White-bellied Sea-Eagle nest sites.
- Increased mortality due to entanglement in discarded fishing gear, and entanglement in fish farm nets.
- Increased mortality or reduced breeding success due to non-target poisoning during vertebrate pest control, exposure to industrial chemicals and pesticides used for agriculture (directly or indirectly through prey), and deliberate poisoning.

- Climate change, leading to sea-level rise will result in inundation of low-lying coastal areas with unknown impacts on this species. In inland areas increased drought frequency and duration may result in inland areas being increasingly unsuitable for nesting, compared with baseline levels.

Of these, the second threat is of potential relevance when considering the impacts of the proposal. The proposal would require the use of a helicopter to remove the steel lattice tower, which may result in the disturbance to breeding sites. However, the operation of the helicopter would occur for approximately two days (weather dependent). Safeguards listed in Section 9 have been designed to mitigate these potential impacts.

With consideration of these factors, it is *unlikely* that the proposed activity could have an adverse effect on the life cycle of White-bellied Sea-eagle, such that a viable local population is likely to be placed at risk of extinction.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

- (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
- (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

These species are not a listed threatened ecological community (TEC).

(c) in relation to the habitat of a threatened species or ecological community:

- (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and
 - (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and
 - (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population, or ecological community in the locality,
- i. The proposal would not result in the removal or modification of native vegetation.
 - ii. The proposed activity would not isolate or fragment areas of habitats.
 - iii. The proposal would not remove, modify, fragment, or isolate any habitat in the locality.

(d) whether the action proposed is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

No declared areas of outstanding biodiversity value are known within the Bega Valley LGA under the BC Act.

(e) whether the action proposed constitutes or is part of a key threatening process or is likely to increase the impact of, a key threatening process,

The proposed activity – lighthouse reinstatement and lattice tower removal – does not require the removal of native vegetation, and therefore is not recognised as a key threatening process (KTP) under schedule 4 of the BC Act or the FM Act.

With consideration of these factors, the proposed activity would not result in the operation of or increase the impact of a key threatening process.

Conclusion

This Assessment of Significance has determined that the proposed activity is ‘*unlikely*’ to have a ‘*significant effect*’ on Eastern Ground Parrot, Osprey, Square-tailed Kite, Striated Fieldwren, White-bellied Sea-eagle, or their habitats.

(a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Mammals (Long-nosed Potoroo, Southern Brown Bandicoot, Spotted-tailed Quoll)

Long-nosed Potoroo

Inhabits coastal heaths and dry and wet sclerophyll forests. Dense understorey with occasional open areas is an essential part of habitat, and may consist of grasstrees, sedges, ferns or heath, or of low shrubs of tea-trees or melaleucas. A sandy loam soil is also a common feature. Individuals are mainly solitary, non-territorial and have home range sizes ranging between 2-5 ha. Breeding peaks typically occur in late winter to early summer and a single young is born per litter. Adults are capable of two reproductive bouts per annum (DPE/BCS, 2023).

The fruit-bodies of hypogeous (underground-fruited) fungi are a large component of the diet of the Long-nosed Potoroo. They also eat roots, tubers, insects and their larvae and other soft-bodied animals in the soil. Often digs small holes in the ground in a similar way to bandicoots. Mainly nocturnal, hiding by day in dense vegetation - however, during the winter months animals may forage during daylight hours (DPE/BCS, 2023).

DPE/BCS (2023) identify the following threats to the Long-nosed Potoroo:

- Habitat loss and fragmentation from land clearing for residential and agricultural development

- Predation from foxes, wild dogs and cats
- Inappropriate fire regimes reduce the density and floristic diversity of understorey vegetation
- Logging or other disturbances that reduce the availability and abundance food resources, particularly hypogeous fungi, and ground cover
- Unplanned clearing in areas where the species occurs on private property is likely to degrade the species' habitat
- Need to better understand how or if native or introduced predators impact Long-nosed Potoroo abundance in the long-term.

The proposal would not pose an impact in relevance to these threats.

With consideration of these factors, it is *unlikely* that the proposed activity could have an adverse effect on the life cycle of Long-nosed Potoroo such that a viable local population is likely to be placed at risk of extinction.

Southern Brown Bandicoot

The Southern Brown Bandicoot has a patchy distribution. It is found in south-eastern NSW, east of the Great Dividing Range south from the Hawkesbury River, southern coastal Victoria and the Grampian Ranges, south-eastern South Australia, south-west Western Australia and the northern tip of Queensland (DPE/BCS, 2023).

Southern Brown Bandicoots are largely crepuscular (active mainly after dusk and/or before dawn). They are generally only found in heath or open forest with a heathy understorey on sandy or friable soils. Males have a home range of approximately 5-20 hectares whilst females forage over smaller areas of about 2-3 hectares (DPE/BCS, 2023).

DPE/BCS (2023) identify the following threats to the Southern Brown Bandicoot:

- Loss and fragmentation of habitat through land-clearing for agriculture and urban development and changes in forest structure
- Burning regimes that impact on understorey species and floristic structure
- Predation by introduced predators such as cats, dogs and foxes
- Death or injury by fire and motor vehicles
- Unsure of the species' localised distribution or abundance.

The proposal would not pose an impact in relevance to these threats.

With consideration of these factors, it is unlikely that the proposed activity could have an adverse effect on the life cycle of Southern Brown Bandicoot such that a viable local population is likely to be placed at risk of extinction.

Spotted-tailed Quoll

The Spotted-tailed Quoll can be found along the east coast of NSW where it has been recorded in a variety of habitat types including coastal heath, forests, woodlands and rainforests where it uses fallen logs and rocky outcrops as den sites (DPE/BCS, 2023, Ruibal et al., 2010, Menkhorst and Knight, 2010). The species is largely nocturnal and solitary, foraging through areas characterised by dense vegetation and substantial layers of ground litter. Females are known to occupy home ranges up to 750 hectares while males as large as 3,500 hectares (DPE/BCS, 2023). There are existing records in the locality for this species.

DPE/BCS (2023) identify the following threats to the Spotted-tailed Quoll:

- Loss, fragmentation, and degradation of habitat
- Competition with introduced predators such as cats and foxes
- Deliberate poisoning, shooting, and trapping, primarily in response to chicken predation
- Roadkill.

The proposal would not pose an impact in relevance to these threats.

With consideration of these factors, it is *unlikely* that the proposed activity could have an adverse effect on the life cycle of Spotted-tailed Quoll such that a viable local population is likely to be placed at risk of extinction.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

- (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or**
- (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,**

These species are not a listed threatened ecological community (TEC).

(c) in relation to the habitat of a threatened species or ecological community:

- (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and**
- (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and**
- (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population, or ecological community in the locality,**

- i. The proposal would not result in the removal or modification of native vegetation.
- ii. The proposed activity would not isolate or fragment areas of habitats.
- iii. The proposal would not remove, modify, fragment, or isolate any habitat in the locality.

(d) whether the action proposed is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

No declared areas of outstanding biodiversity value are known within the Bega Valley LGA under the BC Act.

(e) whether the action proposed constitutes or is part of a key threatening process or is likely to increase the impact of, a key threatening process,

The proposed activity – lighthouse reinstatement and lattice tower removal – does not require the removal of native vegetation, and therefore is not recognised as a key threatening process (KTP) under schedule 4 of the BC Act or the FM Act.

With consideration of these factors, the proposed activity is unlikely to result in the operation of or increase the impact of a key threatening process.

Conclusion

This Assessment of Significance has determined that the proposed activity is ‘*unlikely*’ to have a ‘*significant effect*’ on Long-nosed Potoroo, Southern Brown Bandicoot, Spotted-tailed Quoll, or their habitats.

NSW Fisheries Management Act 1994

In the FM Act, there are seven factors which are to be considered when determining if a proposed development or activity ‘*is likely to have a significant effect on the threatened species, or ecological communities, or their habitats*’. These seven factors must be taken into account by consent or determining authorities when considering a development proposal or development application. This enables a decision to be made as to whether there is likely to be a significant effect on the species.

The habitat assessment table in **Appendix 4** found that no threatened biota listed under the FM Act that had the potential to be impacted by the proposal based on the evaluation completed. Given this and the absence of aquatic habitats, no further assessment by application of the 7-part test is warranted.