9.2. Discussions and Recommendations

The above table has shown that the ecological benefits of a 50m buffer zone are not likely to be significantly greater than the proposed tapered buffer.

Given the evidence collated in this assessment (see Part D) strongly suggests the ECM has succumbed to extinction on Lot 5; has (at best) only very limited potential to re-colonise this habitat; its viability is best served by augmenting habitat in the west of the Central Corridor where a population has been detected significantly expanding (see section 14); and the current limitations of the coastal strip as a corridor in general: for the purposes of a greater ecological benefit, and a compromise to the uniform 50m buffer, the proponent offers to:

1. Extend the proposed tapered buffer continuously from the southern limit of the current nominated buffer zone to the Bonny Hills STP boundary; and,
2. Assist regeneration of about 1.5ha of Zone 2 into fully structured Coastal Sands Blackbutt forest (currently designated to regenerated into this community for the ECM but in actual fact this would have to be native grassland or, at most, grassy open woodland to provide optimum ECM habitat, and hence pose significant management difficulty), and incorporate the above buffer where it falls into Zone 2 (excluding any required cleared easement for the overhead powerline).

The purpose of extending the tapered buffer beyond that currently specified in the Concept Approval condition and establishing a full regeneration area on Zone 2 is to widen and enhance the functional effectiveness of the corridor provided by the coastal strip, and increase the total area of habitat on the property (and hence carrying capacity generally).

Incorporated within the tapered buffer to the north, this approximately 2.5ha total regeneration area (minus any clearing for an overhead powerline easement), will create a much more effective forested link (increase of about 125m wide, providing a total connection >200m wide) between habitat west of Ocean Drive and the coastal strip via the Central Corridor. If Zone 2 is managed as grassy woodland, its linkage and support potential values would be lesser than if it were fully structured forest.

Consequently, this has significantly more biodiversity benefits than planting an additional 0.3ha of habitat to have a uniform 50m corridor to the development envelope; and managing the balance of Zone 2 as native grassland or open woodland to provide optimum habitat for the ECM which has only (at best) a remote chance of re-colonising the area (see Part D).

This habitat would also potentially offer new habitat for the following threatened species which are known or have potential to occur on-site (Darkheart 2008a, Biolink 2012, 2005, 2003. OEH 2015b):

- Squirrel Glider (foraging habitat).
- Common Planigale (foraging and breeding habitat).
- Grey Headed Flying Fox (foraging habitat).
- Eastern Blossom Bat (foraging habitat).
- Foraging habitat for a suite of Yangochiropteran bats (e.g. East-Coast Freetail Bat, Greater Broad-Nosed Bat, Yellow-Bellied Sheathtail Bat, Little and Eastern Bent-Wing Bat).
- Varied Sittella (foraging and nesting habitat).
- Little Lorikeet (foraging habitat).

- Square-Tailed Kite (foraging habitat).

Consequently, this option is recommended to be adopted and Condition B3 amended accordingly.

Part C: Beach Access Construction Area

Condition C1(23) of the Concept Application determination (which is linked to determination Condition B1 of the Project Application determination) states:

> "*Prior to lodgement of any development application for residential subdivision, the proponent must prepare and implement a vegetation management plan for the Crown land reserve to the east identified as R754444 to the satisfaction of Council. The plan must demonstrate:*
>
> *a) the establishment of a 'vegetated regeneration area';*
>
> *b) removal of all weed species and retention of all native vegetation within the vegetated regeneration area';*
>
> *c) replanting of endemic rainforest species within vegetated regeneration area';*
>
> *d) erection of temporary fencing;*
>
> *e) erection of fencing enclosing regeneration area*."

The intent of this Section is to assess the potential threats and recommend an appropriate vegetated management area associated with the access track, and recommend specific measures associated with these Conditions.

10.0 Current Vegetation Communities Condition

As noted above, Section 6 and Figure 8 of this report only describe the vegetation communities for that portion of the Crown Reserve immediately to the east of Lot 5. As noted previously, this report does not address any part of Crown Reserve R754444 east of the neighbouring PMHC (STP) property or Milland-Seawide properties and this adjoining land is not within the scope of the Concept Approval Conditions (DPI 2012).

10.1. Vegetation Communities

Referral to Figure 8 shows the existing access is bound by Littoral Rainforest for the first approximately 60m, altering to Banksia woodland and ultimately the foredune complex at the beachfront.

Section 6.2 describes the floristic and structural characteristics of this area.

10.2. Weed Density Mapping

10.2.1. Methodology

To determine the appropriate 'vegetation regeneration area', weed density mapping was undertaken over vegetation within 50m north and south of the track.

This width was selected as:

- Perusal of aerial photographs show the immediate area around the beach end of the track is one of the areas most vulnerable to maritime stresses. Given the proponent benefits from formalising this track, the onus thus falls upon them to address this threat.
- As the track has long been established and impacts associated with formalising the track are unlikely to change the status quo, edge effects are not likely to be significantly increased.
- Edge effects associated with the track should be effectively minimised via the measures detailed in Section 12, including infill-planting/regeneration of canopy gaps and current open areas which have recently had major weed removal works undertaken (funded by proponent).
- Landcare groups are primarily undertaking regeneration works over the larger Reserve.

Mapping of weed cover in terms of total weed species rather than individual weed species was chosen due to practical considerations with mapping resolution and highly variable cover and at times variable composition of weeds (as described in Table 9). Weed cover mapping was based on the following modified Braun-Blanquet (B-B) weed-cover percentage scale.

Table 9: Modified Braun-Blanquet scale used to map weed cover

Key	Crown Cover	Visual Appearance	Dominant Weeds/Structure
1	0-5%	Nil to few individuals widely scattered.	Nil to widely scattered individuals or very small patches of juvenile Lantana, Camphor Laurel, Asparagus, Senna and Pasture Grasses in ground/shrub layer Nil to very low weed infestation.
2	5-15%	Few to many individuals widely scattered, or small patches of dense areas/clumpings <100m^2	Scattered to small patches of juvenile/regrowth Lantana and Bitou Bush, Wild Tobacco, Asparagus, Winter Senna, Cobblers Pegs and Pasture Grasses in ground/shrub layer. Low weed infestation.
3	15-50%	Highly variable cover and (often) variety of weed species. Varies from many to scattered individuals and large clumps >100m^2; to dominance of one stratum over >100m^2 eg dominance of groundcover by pasture grass or shrub layer by Lantana.	Areas with a native overstorey where the groundcover is dominated by exotic grasses and herbs such as Paspalum, Whisky Grass, Carpet Grass, Cobblers Pegs. Mild to moderate weed infestation.
4	>50–75%	Dominance of >1 stratum over entire community; highly disturbed vegetation requiring major long term regeneration.	Weed cover category not on site.
5	>75–100%	Dominance of entire area, very little native species; extremely disturbed vegetation requiring >100 years to potentially regenerate even with major intervention.	Almost complete dominance of ground layer by exotic grasses and herbs such as Paspalum, Whisky Grass, Carpet Grass, Cobblers Pegs. Other stratums absent. Severe weed infestation.

The resulting map is shown in Figure 10.

Illustrating the current condition of the access and adjoining vegetation, photos 6 to 18 show the vegetation in increments walking east to west.

As shown in these photos, the edges are currently very open but dominated by native vegetation, with large gaps appearing at the eastern end due to removal of previously dense weed infestations and limited natural regrowth to date.

Photo 6: View of previous Lantana infestation at beach access gate (2008)

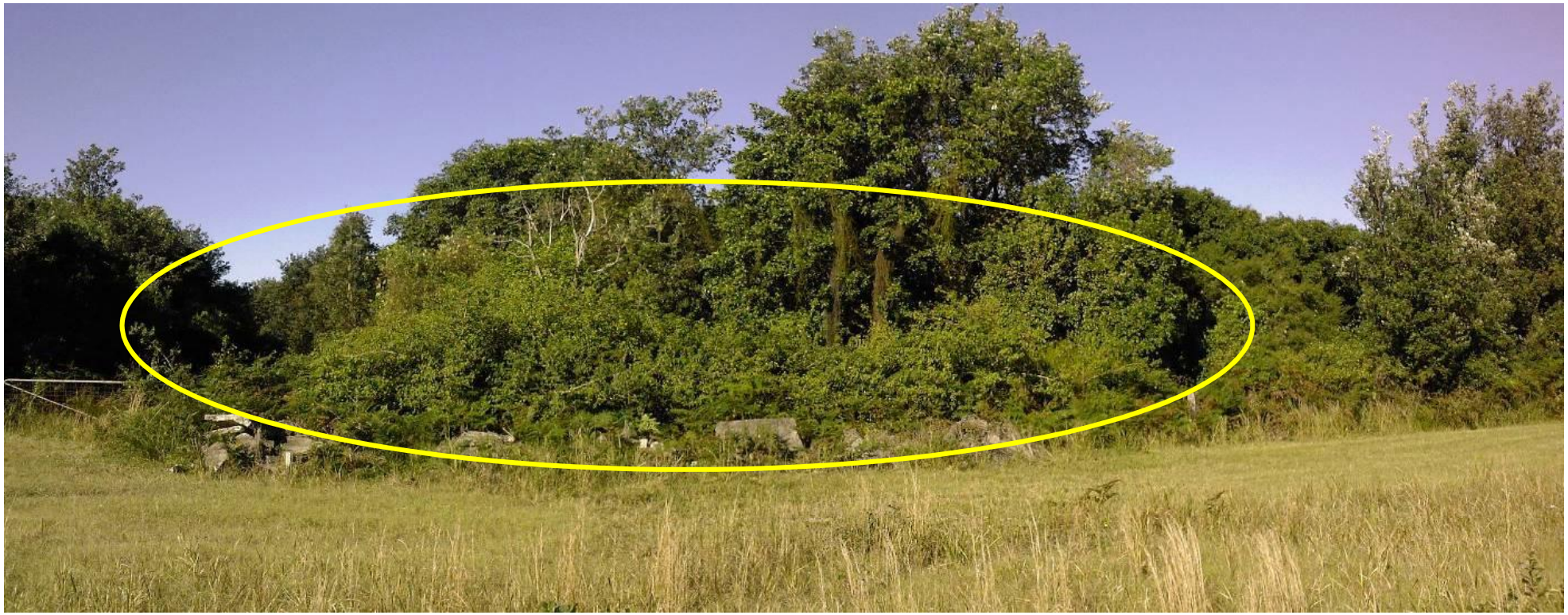

Photo 7: View east of beach access at junction with Lot 5 boundary in 2012

The area shown circled was previously a large dense infestation of Lantana, as shown in Photo 6. This and other major infestations along the track were removed by works funded by the proponent. These areas are being targeted for infill planting to close the forest edge. The existing fence will be enclosed in the tapered buffer plantings proposed in Section 8.

Photo 8: View east of beach access at junction with Lot 5 boundary in 2012

Photo 9: View east along track from western edge of Crown Reserve pre-bush regeneration works (2008)

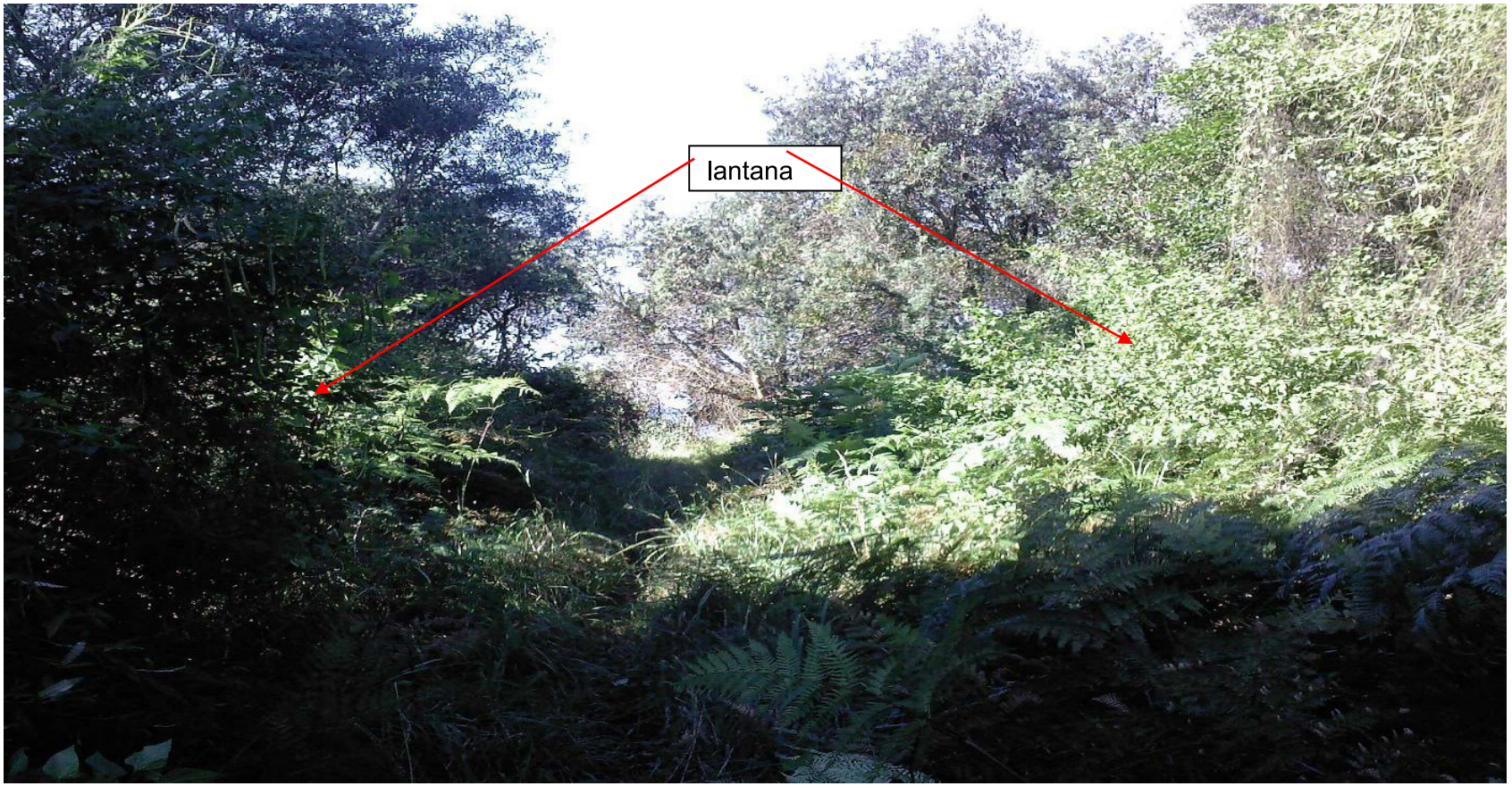

Photo 10: View east along access from just inside reserve from Lot 5 in 2015 post-bush regeneration.

This photo illustrates the opportunity for infill plantings to enclose this track and minimise edge effects.

Photo 11: Approximately 20m east from gate in 2015

Photo 12: Approximately 60m from gate view east and west in 2015