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13th January 2009
Queensland Department of Main Roads
South Coast Region
Nerang Qld 4211

Attention: Neil Wright / Andrew Makinson

Re: Questions With Regard To Compensatory Habitat Site 18

Dear Neil and Andrew,

Please find below my response to your questions raised during an email on the 9th January and subsequent telephone meeting on the 12th January. They relate to providing some additional fauna habitat mapping for Site 18 and some further information justifying why a field assessment for Coastal Planigale (*Planigale maculata*) is not required.

Habitat Mapping of Additional Areas Site 18

Upon review of the figures supplied by DMR I have updated the fauna habitat mapping for Site 18 to show the distribution of various habitats within and adjacent to the original conceptual lot design provided in September 2008 (*see* Figure 1). Habitat beyond the conceptual lot design is predominantly a mosaic of wet (*Banksia ericifolia* and *Melaleuca quinquenervia*) and dry (*Banksia aemula*) heath land. Swamp Forest also occurs in the western precinct adjacent to the dam and is dominated by Swamp Mahogany (*Eucalyptus robusta*) and Broad-leaved Paperbark. Each habitat is structurally similar to the descriptions provided for the lands within the conceptual lot design (Lewis 2008).

The habitats described above are likely to contain both Wallum Froglet (*Crinia tinnula*) and Coastal Planigale. It is likely that some of the wet heath to the north east of the conceptual lots provides habitat for the Wallum Sedge Frog (*Litoria olongburensis*) given the close proximity of records (<100 m) obtained during the recent field survey (Lewis 2008).

Why a field assessment is not required for Coastal Planigale

Further field surveys are not required for Coastal Planigale given there is sufficient ecological evidence to suggest this species occurs on Site 18. This is based on the recent capture of planigale from nearby Site 19, the fact that planigale have a shifting home range in response to foraging resources and prevailing site conditions, the types of fauna habitat present on site 18 is consistent with the planigale capture location at Site 19 and other locations where this species has been previously recorded in north east NSW. These points have been elaborated on below.

Although planigale was not recorded on Site 18 during field surveys in November 2008 it is not to say the species does not occur on this site as trapping effort was limited to a short term sampling strategy of four nights (60 pit nights) during a period of sub optimal weather conditions (i.e. heavy rainfall, high water tables). At times, substantially more survey effort may be required in order to positively detect planigale. For example, almost 1000 pit nights were required before planigale was

positively identified on crown lands at Cobaki yet habitat in this area was always considered suitable for this species (see Lewis 2004 and 2005). Therefore increasing sampling effort could not rule out the likelihood of planigale occurring at this site given the habitat is considered suitable (see below).

A comparison of habitat types between Sites 18 and 19 showed little variation. Both contain dry heathland that borders either wet heath or sedge swamp whilst Site 18 also contains coastal woodland (Banksia understorey) which is thought to provide some additional foraging and refuge habitat, particularly during flood events. Site 18 is relatively undisturbed except for some occasional fire events and some minor easements and tracks both of which are unlikely to affect habitat permeability for planigale. Given this species has been repeatedly captured from dry heath, wet heath, sedge swamp, swamp forest, coastal woodland and their ecotones in various levels of disturbance in north east NSW it is considered that the entirety of Site 18 represents suitable habitat for planigale at one time or another.

So where is the nearest record to substantiate planigale occur in the general vicinity of Site 18? In consultation with the Department of Environment and Climate Change (DECC) Wildlife Atlas the nearest planigale record occurs at Site 19 (see Lewis 2008). The distance between the capture site (i.e. Site 19) and the western boundary of Site 18 has been measured at 330 m and around 540 m from the edge of the conceptual lot design. These distances are considered relatively close for a species which is thought to have a shifting home range in response to local climatic conditions and foraging resources (see Denny 1982; Read 1982; 1988; Miller 1998). Habitat between the capture location and Site 18 is a mosaic of dry heath on low undulating ridges with wet heath and sedge swamp along drainage lines and low lying areas subject to regular inundation. Given that each of these habitats comprise dense ground covers they are considered suitable habitat for planigale.

Given the above it is considered plausible that planigale occur over much of this area (Site 18-19 and surrounds), however, their tenure at any one time may vary in response to local climatic conditions and food resources (see Denny 1982; Read 1982; 1988; Miller 1998). Therefore short-term sampling may do little more than determine presence rather than being able to demonstrate the absence of this species from any given area which provides suitable habitat. This is supported by a number of monitoring events at other locations in north eastern NSW including sampling undertaken for the Tugun Bypass project, Koala Beach Estate and Bundjalung National Park (Hero *et al.* 2001; Lewis 2004; Lewis 2005; Hannah 2008; Southern Cross University unpublished data). Successive sampling events at these locations have found that planigale may be captured intermittently and is not always detected during monitoring/sampling events.

I hope that the points raised above service your needs in addressing the outstanding offsets for the Tugun Compensatory Offset package. Should you require any further information please feel free to contact me at your convenience.

Kind Regards



Ben Lewis (principal)
Lewis Ecological Surveys

References

- Callaghan, J; Fitzgerald, M; Lloyd, G; Rhodes, J; de Jong, C; and James, R. (2005). Koala Beach Estate: Common Planigale Plan of Management. Prepared for Ray Group by Australian Koala Foundation
- Denny, M.J.S. 1982. Review of Planigale (Marsupialia: Dasyuridae) ecology. Pp 131-138 in *Carnivorous Marsupials* (ed) M. Archer, Royal Zoological Society of NSW.
- Hero, J-M., Shoo, L. and Phillips, S. 2001b. Surveys of planigales, eastern long-eared bat and wallum sedge frogs within the proposed Tugun By-pass (Boyd Street to Stewart road). Unpublished report to PPK.
- Lewis, B.D (2004). Systematic surveys for the coastal planigale (*Planigale maculata*) on crown lands and a detailed habitat appraisal of the Tugun/Cobaki locality. Report prepared for Parsons Brinckerhoff (Brisbane) and Department of Main Roads and Transport (Nerang) by Lewis Ecological Surveys.
- Lewis, B.D (2005). Systematic surveys for Wallum Sedge Frog (*Litoria olongburensis*), Wallum Froglet (*Crinia tinnula*) and Coastal Planigale (*Planigale maculata*) on lands identified for compensatory habitat: Block F (Bogangar). Report prepared for Parsons Brinckerhoff (Brisbane) and Department of Main Roads and Transport (Nerang) by Lewis Ecological Surveys.
- Lewis, B.D. (2008). Target surveys for Wallum Frogs (*Litoria olongburensis*, *Crinia tinnula*) and Coastal Planigale (*Planigale maculata*) as part of the Tugun Bypass Compensatory Habitat Project – Skinners Shoot and Broadwater Candidature Sites. Report prepared by Lewis Ecological Surveys for Department of Main Roads, Nerang.
- Miller, J. 1998. Habitat and distribution of small dasyurid marsupials within the Byron Shire, northern NSW. Unpublished Graduate Thesis, Southern Cross University, Lismore.
- Read, D. 1982. Observations of the movements of two arid zone planigales (Dasyuridae, Marsupialia). Pp 227-231 in *Carnivorous Marsupials*, ed M. Archer. Royal Zoological Society NSW: Sydney, Australia.
- Read, D.G. 1988. Weather and trap response of the Dasyurid Marsupials *Sminthopsis crassicaudata*, *Planigale gilesi* and *P. tenuirostris*. *Australian Wildlife Research* **15**: 139-48.



Figure 11.9: Site 20, Broadwater



Figure 11.10: Site 20, Broadwater

APPENDIX 8: TARGET SURVEYS: RUSSELL ISLAND CANDIDATURE SITE

APPENDIX 9: TARGET SURVEYS: SKINNERS SHOOT AND BROADWATER CANDIDATURE SITES

APPENDIX 10: SUITABILITY OF SITE 18 FOR COMMON PLANIGALE
