

ADDENDUM - Flora and fauna assessment, Shoalhaven Cancer Care Centre, Nowra, NSW.

I. Introduction and background

At the request of Urban Planning Outcomes, a flora and fauna investigation was completed by LesryK Environmental Consultants in 2011 in relation to the rezoning of land at Nowra Park, Nowra, New South Wales (NSW) (refer to original document). The ecological investigation was conducted as Health Infrastructure are proposing to develop a Cancer Care Centre at this location.

Given the winter timing of the original investigation no nocturnal work, in particular none targeting microchiropterans, was undertaken. As three hollow bearing trees were recorded within the study area, it was considered necessary to adopt a precautionary approach in relation to the presence of any of those threatened hollow bearing microchiropterans previously recorded within the study region. Based on the assessment criteria provided under Section 5A of the *Environmental Planning and Assessment Act 1979* (these commonly being referred to as the 'seven part test'), the proposed development was not considered to have a significant impact on any of the potentially occurring threatened microchiropterans.

Given that only a precautionary approach has been adopted, to fulfil Council's requirements, it was considered appropriate to undertake a targeted microchiropteran study of the those hollow bearing trees present on site. As such, this study has been undertaken to confirm or negate the presence of any hollow dependant microchiropterans within those hollow bearing trees that occur within the project site.

During the current study, the characteristics (i.e. number and size of hollows) of those three hollow bearing trees previously identified were recorded. In addition, portions of the nearby Nowra Showground and Nowra Recreation Area were also surveyed (Figure 1). These adjacent areas were investigated to determine the presence of any hollow bearing trees so as to put the study site in a local context. The characteristics of those hollow bearing trees present within Nowra Showground and Nowra Recreation Area were recorded. It is noted that no stag watching or echolocation targeting microchiropterans was undertaken within these areas as this was beyond the scope of works requested.



Not to scale. Source: Google Maps (2012).

Figure 1: Areas investigated to identify hollow bearing trees. Numbers correspond to tag numbers placed on the trees present.

2. Field investigations.

A survey of the study area was undertaken by Deryk Engel (B.Env.Sc.HONS) and Stephen Bloomfield (B.App.Sc) on the 31st of January and Stephen Bloomfield on the 5th of February 2012. For reference, the weather conditions experienced during the site investigations were:

- overcast skies (100% cloud cover), cool temperatures (around 20°C) and moderate to strong south-easterly winds with intermittent drizzle on the 31st of January; and
- clear skies, warm temperatures (around 26°C) and light north-easterly winds on the 5th of February.

Methods employed during the field investigations were stag watching, echolocation detection and spot lighting.

In line with the 'Threatened Biodiversity and Survey Guidelines for Developments and Activities, Working Draft' (DEC 2004), stag watching requires the researcher to be on site 30 minutes prior to sunset and 1 hour following sunset. At the time of the investigations, sunset was around 20.00 hours. As such, stag watching commenced at 19.30 hours and went until 21.00 hours. To observe or hear any exiting species, each researcher positioned themselves so that sufficient back (night sky) light was present. At the completion of the stag watching session, the hollow bearing tree being observed, and its immediate surrounding area, was spot lit.

During each stag watching session, an Anabat SDI™ and two Anabat ZCAIM™ echolocation detectors were used to identify those microchiropterans that may be present. To determine if any roosting bats were present, a detector was set up at each of the hollow bearing trees proposed for removal. As with the stag watching, and as the purpose of the study was to target roosting bats, not those that could fly through the site at other times of the night, the Anabat detectors were all set at 19.30 hours and picked up at 21.00 hours. Any calls recorded were analysed in house using Anabat 6.3 computer software.

By the completion of the field survey, a total of 4.5 person hours of stag watching and nine echolocation hours had been accumulated. Given the essentially cleared and disturbed nature of the subject site and, hence, unimpeded line of sight to those hollow bearing trees being surveyed, no limitations to the success of the study were encountered.

3. Results.

The number and opening diameter of those hollows present within each of the study area's hollow bearing trees is provided in Table 1. In addition, as previously mentioned, so as to provide a comparison, characteristic of those hollow bearing trees present in a section of the nearby Nowra Showground and Nowra Recreation Area are also provided. When referring to tree numbers, these correspond to metal tags that have been nailed on each of the plants present. In regards to these tags, it appears that all trees within, and in the vicinity of the study area, whether hollow bearing or not, have been numbered and presumably surveyed.

Table 1. Characteristics of those hollow bearing tree present within, and near to, the study area.

Location	Tree #	# of hollows	Size (mm) ¹
Study Area	15	2	100
	33	1	50
	79	8	50 - 250
Nowra Showground	27	2	100
	28	2	50
	33	5	50- 100
Nowra Recreation Area (playground)	59	2	50 - 100
	Unnumbered	4	100
	Unnumbered	2	100

¹ Diameter of tree hollow opening.

It is noted that several trees in both the Nowra Showground and Nowra Recreation Area exhibit evidence of tree trimming and branch removal works. The branches removed are likely to be those that presented a safety risk to the public (i.e. those that are either dead or dying).

By the completion of the field investigation four (4) microchiropterans had been recorded, these being the:

- Gould's Wattled Bat (*Chalinolobus gouldii*);
- Chocolate Wattled Bat (*Chalinolobus morio*);
- Greater Broadnosed Bat (*Scoteanax rueppellii*); and
- Little Forest Bat (*Vespadelus vulturnus*).

Of these species, the Greater Broadnosed Bat (*Scoteanax rueppellii*) is listed as Vulnerable under the TSC Act. This species is distributed from southern coastal Queensland through to south eastern NSW, though its strong hold appears to be the gullies and river systems draining the Great Dividing Range (Churchill 2008, Van Dyck and Strahan 2008). The Greater Broadnosed Bat does not occur above 500m, except perhaps, in the very north of its range (Van Dyck and Strahan 2008). This species generally occupies open eucalypt woodlands, though it will also utilise rainforests, foraging and moving along natural and human made openings that have been created in the forest (Van Dyck and Strahan 2008). The Greater Broad-nosed Bat is known to fly slowly and directly (having poor manoeuvrability) along creek and river corridors at an altitude of 3m to 6m (these being a favoured movement/foraging corridor) (Van Dyck and Strahan 2008, NSW Office of Environment and Heritage 2012). This species usually roosts in tree hollows, though some individuals have been found in the roof spaces of old buildings (Van Dyck and Strahan 2008). The Greater Broad-nosed Bat feeds on large insects such as beetles, and is also known to take small vertebrates such as mice and other small bats (Van Dyck and Strahan 2008). Little is known of its reproductive cycle, however a single young is born in January; prior to birth, females congregate at maternity sites located in suitable trees, where they appear to exclude males during the birth and raising of the single young (Van Dyck and Strahan 2008).

The presence of the Greater Broadnosed Bat in the vicinity of the study area was highlighted in Table 2 of the original ecological study and discussed within Section 5.2.2. (c) of that report (LesryK Environmental Consultants 2011). The approach adopted when preparing the original ecological study was to assume this species was present and conduct the necessary assessments.

The first pass of this bat was recorded at 20.22 on the 5th of February through use of the Zcaim Anabat detector that was pointed at Tree 79 (refer to Figure 1). The species was not recorded within the study area during the second evening. The detection of this species 22 minutes after nightfall, and its detection on only one evening, would suggest that it is not residing in the study area but accessing it to forage (if the bat was residing on site, its calls would have been recorded closer to nightfall and during both evenings). Whilst it is considered that the Greater Broadnosed Bat was only foraging within the project site there is the possibility that it could be roosting within one or more of the hollow bearing trees present.

During the stag watching session undertaken on the 31st of January a Common Brushtail Possum (*Trichosurus vulpecula*), was observed exiting a hollow that is present in Tree No. 79. This was the only animal observed exiting one or more of the trees which were stag watched. The Common Brushtail Possum is not listed on the Schedules to the EPBC or TSC Acts, however it is protected under the NSW *National Parks and Wildlife Act 1974*. This species is considered to be common to abundant within its distribution range and is tolerant of urban development. To prevent any unnecessary harm to this animal arising, those recommendations put forward in this report should be considered.

The results obtained during the current study confirm the approach taken during the initial investigation, that being that threatened microchiropterans are occupying those hollow bearing trees that occur within the study area. In preparing the original assessment of significant, this drawing on the criteria provided under Section 5A of the NSW *Environmental Planning and Assessment Act 1979* (these commonly being referred to as the "seven part test"), it was assumed that all trees present would be cleared. Though this is the case, it was not considered that the scope of works proposed would have a significant impact on any threatened microchiropterans. Within the locality, similar foraging and sheltering resources are present, these expected to provide resources that would ensure the local viability of the Greater Broadnosed Bat (*Scoteanax rueppellii*). The assumptions and conclusions made when preparing the seven part test are still considered to be relevant and applicable to the project.

As such, even though the presence of threatened species has been confirmed, it is not considered necessary to prepare another assessment of significance. If another assessment of significance was prepared, the same conclusion as initially made would be reached (i.e. the scope of works proposed would not have a significant impact on the Greater Broadnosed Bat). Similarly, the preparation of a Species Impact Statement would not be recommended.

To ensure that the works are undertaken in an ecologically sustainable manner those recommendations provided within the initial report should be considered and adopted where feasible.

References.

Churchill, S. (2008) *Australian Bats*. Reed - New Holland, Frenchs Forest, NSW.

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