

## **Report under the NV Act 2003 in relation to the use of more appropriate local data (section 2.4.3 of the Environmental Outcomes Assessment Methodology)**

**Accreditation number:** 30628

**PVP/DA reference number:** 12327

It is recommended that more appropriate local data be substituted for the data in the PVP Developer in relation to:

- whether threatened animal species are likely to occur on the land in that vegetation type or habitat feature in the sub region.

### **Description of the proposed clearing:**

The property vegetation plan involves the clearing of 85 scattered paddock trees from existing cultivation fields approximately thirty kilometres west of Narromine. The subject property is located within the Bogan-Macquarie sub-region of the Central West Catchment Management Authority area.

The trees proposed for removal consist of 65 scattered Western Rosewood (*Alectryon oleifolius*) with an average DBHOB of 55cm (from four trees sampled), 14 White Cypress Pine (*Callitris glaucophylla*), average DBH of 47cm (five trees sampled) and 4 Poplar Box (*Eucalyptus populnea*) with average DBH of 75cm (two trees sampled).

A sample of eleven scattered paddock trees was undertaken by the CMA assessing officer with regards to the presence of tree hollows. Two of the trees sampled were Poplar Box, with neither tree having hollows. No hollows were found in four Rosewood trees inspected or five White Cypress Pine trees.

The proposed off-set areas on the property consist of two portions. One is dominated by Poplar Box and the other is an existing re-planting site which contains a mix of Poplar Box, Grey Box (*E. microcarpa*) and Belah (*Casuarina cristata*). Tree stem density at the proposed Poplar Box off-set site is between 20-40 stems/ha, giving it an open woodland structure. The re-planting area has trees planted generally between 16-24m apart, interspersed with understorey shrubs (Old Man Saltbush (*Atriplex nummularia*), Myall (*Acacia pendula*) and other acacias) at 4-8m intervals. The age structure of the two proposed off-set areas differs with the Poplar Box site having tree diameters of 50cm or greater, while the re-planting site had Poplar Box and Belah all between 15-20cm diameter at breast height.

Two, 20 x 50m plots were used to sample trees in the off-set areas for tree hollows by the CMA assessing officers. Three trees with hollows were found in the predominantly Poplar Box site. Therefore, the abundance of hollow-bearing trees one wooded off-set area can be considered to be higher to that within the scattered paddock trees proposed for removal (for which no hollows were found).

However, a lack of Rosewood and White Cypress Pine in the proposed off-set areas mean the threatened species tool shows inadequate foraging habitat for two bat species, the Little Pied Bat (*Chalinolobus picatus*) and the Yellow-bellied Sheath-tail Bat (*Saccolaimus flaviventris*).

The question that is asked is therefore:

Could more appropriate local data be used to allow for a change in tree species to accommodate foraging habitat for the above threatened species?

**Details of the data proposed to be substituted:**

The Threatened Species Tool of the PVP Developer indicates that offsets required for the Little Pied Bat and the Yellow-bellied Sheath-tail Bat be vegetation of the same species as that proposed to be cleared (see table below).

	<b>Ability to sustain loss in paddock trees(See Operational Manual for offset &gt; 75% of benchmark)</b>	<b>Special sustain loss and offset requirements</b>
Little Pied Bat ( <i>Chalinolobus picatus</i> )	Yes; offset overstorey cover must be <75% of upper benchmark, have minimum 5X the number cleared, be similar dbh class and same spp. Management of offset must include sufficient replanting of overstorey spp. to replace mature canopy cover to within benchmark range.	
Yellow-bellied Sheath-tail Bat ( <i>Saccolaimus flaviventris</i> )	Yes; offset overstorey cover must be <75% of upper benchmark, have minimum 5X the number cleared, be similar dbh class and same spp. Management of offset must include sufficient replanting of overstorey spp. to replace mature canopy cover to within benchmark range.	

It is proposed in relation to the use of more appropriate local data (section 2.4.3 of the Environmental Outcomes Assessment Methodology) that the requirement for the same vegetation species to be offsets as that being removed should be modified in the case of the Little Pied Bat and the Yellow-bellied Sheath-tail Bat. The reasoning is that in this case the proposed offset vegetation should be considered to be higher quality foraging habitat than the scattered trees proposed to be removed. Also, it is considered that mature Western Rosewood and White Cypress Pine trees do not provide tree hollows of suitable size for the roosting of the Yellow-bellied Sheath-tail Bat and that the Little Pied Bat is highly unlikely to utilise hollows in scattered trees in a cropping paddock compared to areas of intact remnant vegetation nearby.

**Reasons for recommending the proposed substitution:**

**1. Yellow-bellied Sheath-tail Bat (*Saccolaimus flaviventris*)**

- A search of the BioNET and NSW Wildlife Atlas databases on the 12/8/2010 reveal one record near the subject property at Nine Mile Cowal on the Trangie – Dandaloo Road. This record is approximately 15km west of the property. Outside the local district, additional records of this species occur in all directions from the subject property, thus this species does have the potential to occur in the proposed development area.
- Ayers *et al.* (1996) stated the species occurs in most wooded habitats, and during the day roosts in large tree hollows. The bat feeds by

foraging for flying insects above the tree canopy. The proposed development site is not a wooded habitat preferred by the species, however foraging over the scattered paddock trees can still take place. The proposed offset areas are a re-planting corridor of Poplar Box, Grey Box and Belah at woodland density and a block of open woodland dominated by Poplar Box. Thus, these areas would be a more preferred foraging habitat by this species over the scattered paddock trees proposed for removal.

- NPWS (2002) in an extensive survey of the Darling Riverine Plains Bioregion (of which the subject property is a part), recorded the species at a wide range of habitat types ranging from *Eucalyptus* and *Casuarina cristata* (Belah) woodlands to open *Acacia pendula* (Myall) woodland and low chenopod / grass plains. It was noted that several sites at which this species was detected were in isolated woodland fragments or in cleared land near woodland fragments. It was suggested the species had at least some ability to persist in environments with reduced roost availability. No records were made from scattered paddock tree habitats. The proposed offset areas would therefore represent more preferred foraging habitat than the scattered trees in a cleared paddock.
- A biodiversity survey of the Brigalow Belt South Bioregion recorded the species from numerous eucalypt vegetation communities (RACD 2002). All sites were woodland / forest patches and not scattered paddock trees. Therefore, the proposed offset area would represent more preferred foraging habitat than the scattered trees in a cleared paddock.
- Shelly (2006) reported on the results of 40 week-long fauna surveys conducted over several years from throughout the Central West Catchment. The Yellow-bellied Sheath-tail Bat was not detected from any sites within cultivation or grassland paddocks (with or without scattered trees). The vegetation types with the highest detections per site (an indication of foraging habitat preferences) were Rough-barked Angophora / Blakely's Red Gum open woodland, Lignum shrubland and Inland Red Box / White Cypress Pine woodland. Eucalypt woodland areas provided the majority of known species detections and would seem to be preferred habitats compared to more open vegetation types.
- Rhodes and Hall (1997) reported on the finding of a colony of 29 bats found in a dead eucalypt tree in Queensland. This stag tree was estimated to be 20m tall and was located in a cleared paddock. The stag was at least 25m from any other trees. The colony was the largest recorded at that time. It was suggested that the colony required a large tree hollow to hold so many bats as the species is one of the largest of the micro-bats. Thus, large hollow-bearing scattered paddock trees, dead or alive, can be utilised by this species. The proposed development area consists mainly of scattered mature trees of Western Rosewood and White Cypress Pine. Data obtained by PVP officers show that a representative sample of these trees, plus some Poplar Box, contained no hollows.
- Richards (2000) recommended two important management priorities for the Yellow-bellied Sheath-tail Bat as being the retention of large tracts of woodland and forest foraging habitat, and the conservation of tree hollow roosts. The proposed development area is scattered to isolated paddock trees and not tracts of woodland, with the majority of trees unlikely to provide suitable hollows for roosting. The offset areas, however, are a re-planted woodland corridor and a remnant block that contains hollow-bearing trees. These areas would be the preferred foraging habitat for this species.

- The Yellow-bellied Sheath-tail Bat requires large tree hollows for nesting and roosting (Ayers *et al.* 1996). The trees proposed for removal in this application are noted as being mainly Western Rosewood, White Cypress Pine and Poplar Box. Both Rosewood and the pine are unlikely to contain large tree hollows suitable for roosting should the species occur in the local district.

A survey of tree hollow presence according to tree diameter and height was conducted by Shelly (2005) for most of the tree species in the Central West Catchment of NSW. In the case of Western Rosewood it was found that small hollows (<5cm entrance diameter) were consistently found in trees above 30cm dbh and medium hollows (5-15cm) consistently occur in trees above 38cm dbh. No large tree hollows (>15cm) were recorded for Rosewood at any tree diameter or height. Poplar Box was found to contain small hollows in trees above 30cm diameter, medium size hollows above 41cm diameter and large hollows above 54cm diameter. Tree hollows in White Cypress Pine were found to not consistently occur above any diameter size.

Therefore, it can be seen that the average diameter of the trees sampled by CMA officers in the area proposed for removal was large enough to potentially provide tree hollow habitat for most of the species concerned except for White Cypress Pine (which tended not to form hollows). However, these same trees sampled in the field inspection contained no hollows, whereas several trees inspected within the proposed off-set areas did.

## 2. Little Pied Bat (*Chalinolobus picatus*)

- A search of the BioNET and NSW Wildlife Atlas databases on the 12/8/2010 reveal several records of the species within the Narromine local government area where the subject property is located. Other records of this species occur in all directions from the subject property outside of the LGA, thus this species does have the potential to occur in the proposed development area.
- Ayers *et al.* (1996) stated the Little Pied Bat is known from Brigalow, riparian and Bimble (Poplar) Box woodlands as well as mallee areas. The bat can roost solitarily or in small breeding colonies. Therefore, breeding colonies would require larger tree hollows than that for a single bat. Two of the four Poplar Box trees in the proposed development area were examined for hollows with none being found. Scattered Western Rosewood and White Cypress Pine trees in a cleared paddock are unlikely to contain hollows available for breeding colonies of this species. The mature eucalypts in at least one of the proposed offset areas are more likely to provide roosting habitat.
- Extensive surveys within the Brigalow Belt South Bioregion have recorded the species from several woodland habitats. Habitats where the species was recorded were mainly ironbark, Brigalow (*Acacia harpophylla*), White Box (*Eucalyptus albens*), Pilliga Box (*E. pilligaensis*) and Grey Box (*E. microcarpa*) (RACD 2002). No records were made in cultivated paddocks with scattered trees.
- Extensive surveys within the Darling Riverine Plains Bioregion found the Little Pied Bat in a wide range of habitat types (NPWS 2002). These were all woodlands with the exception of open shrublands of Myall. The surveys indicated a marked preference for Belah habitat types, whether it was the dominant or sub-dominant species. PATN analysis showed

the species occurred in all habitat assemblages except for grasslands and shrublands. The report concluded that the species can persist in highly fragmented landscapes at very low densities, however, the emphasis was on woodland remnants as habitat and not scattered paddock trees. The proposed offset areas would thus be considered a more preferred foraging habitat for the species than the scattered paddock trees.

- Duncan *et al.* (1999) in the Action Plan for Australian Bats, described one of the main threatening processes to Little Pied Bat ecology as being *"the loss of mature roost trees in inland areas, particularly in riverine environments and the removal of old buildings or damage to them."* The scattered trees proposed to be removed are not located on riparian environments.
- Shelly (2006) reported on the results of 40 week-long fauna surveys conducted over several years from throughout the Central West Catchment. In a comparison of habitat types utilised by the species it was concluded that the Little Pied Bat *"occurs at significantly lower frequency over open vegetation such as grassland and/or cultivation and Lignum shrubland compared to woodland or forest types. This would indicate that while the bats preference is for utilising structured habitats it can also feed on flying insects that are not reliant on the presence of a tree canopy."* Therefore, the proposed offset areas would be the more preferred foraging habitat for the Little Pied Bat than that of scattered trees within a cleared paddock.

A survey of tree hollow presence according to tree diameter and height was conducted by Shelly (2005) for most of the tree species in the Central West Catchment of NSW. In the case of Western Rosewood it was found that small hollows (<5cm entrance diameter) were consistently found in trees above 30cm dbh and medium hollows (5-15cm) consistently occur in trees above 38cm dbh. No large tree hollows (>15cm) were recorded for Rosewood at any tree diameter or height. Poplar Box was found to contain small hollows in trees above 30cm diameter, medium size hollows above 41cm diameter and large hollows above 54cm diameter. Tree hollows in White Cypress Pine were found to not consistently occur above any diameter size.

Therefore, it can be seen that the average diameter of the trees sampled by CMA officers in the area proposed for removal was large enough to potentially provide tree hollow habitat for most of the species concerned except for White Cypress Pine (which tended not to form hollows). However, these same trees sampled in the field inspection contained no hollows, whereas several trees inspected within the proposed off-set areas did.

- Personal observations made from many surveys in the central west catchment indicate the Little Pied Bat can be found in small colonies as well as pairs and individuals. The species can also utilise loose bark on trees for roosts in addition to tree hollows, buildings and caves. Western Rosewood is a small tree species that generally do not have loose bark for potential roost habitat. Rosewood trees comprise 76% of the trees proposed for removal.

**Recommendation:**

1. It is my opinion that the Yellow-bellied Sheath-tail Bat would only have potential foraging habitat over the scattered paddock trees of the proposed development area. Little to no roost habitat is available. The proposed offset areas of a re-planted tree corridor and more mature Poplar Box remnant at an open woodland density would be the more preferred foraging habitat type for this species than scattered to isolated paddock trees.

2. It is my opinion that the Little Pied Bat would only have potential foraging habitat around the scattered paddock trees of the proposed development area. Little to no roost habitat is available. The proposed offset areas of a re-planted tree corridor and more mature Poplar Box remnant at an open woodland density would be the more preferred foraging habitat type for this species than scattered to isolated paddock trees.

**References:**

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