

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: 4168

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 scattered paddock trees from an existing cultivation field near Armatree. The subject property is located within the Castlereagh-Barwon sub-region of the Central West Catchment Management Authority area.

The majority of trees to be removed are isolated to scattered mature individuals of Rosewood (*Alectryon oleifolius*), White Cypress Pine (*Callitris glaucophylla*) and Buloke (*Allocasuarina luehmannii*) within the southern-most paddocks of the property. Offset areas have been identified but are patches of eucalypt woodland with few of the above species present. Some additional tree planting will also be needed within the offset areas to satisfy the threatened species tool requirements.

For the purposes of running the PVP Developer Tool, the vegetation of the area has been determined as: Poplar Box - Belah woodland on clay-loam soils of the alluvial plains of north-central NSW.

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 Sheathtail Bat be vegetation of the same species as that proposed to be cleared (see table below).

	Ability to sustain loss in paddock trees(See Operational Manual for offset > 75% of benchmark)	Special sustain loss and offset requirements
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 patches of eucalypt woodland (dominated by Poplar Box and Grey Box) should be considered to be higher quality habitat than the scattered trees proposed to be removed.

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 19/2/2008 reveal a total of 5 records of the species within the Gilgandra local government area (where the subject property is located). No records are near the subject property at Armatree. Other records of this species occur both east and west of 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 area is a woodland and thus would be a habitat preferred by this species over the scattered paddock trees.
- 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 area of eucalypt woodland would therefore represent more preferred habitat than the scattered trees in a cleared paddock.

- A biodiversity survey of the Brigalow Belt South Bioregion (east of the subject property) recorded the species from numerous eucalypt vegetation communities plus Bloodwood, Smooth-barked Apple and Brigalow (RACD 2002). All sites were woodland / forest patches and not scattered paddock trees. Therefore, the proposed offset area of eucalypt woodland would represent more preferred 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 of scattered mature trees of several species. Data obtained by PVP officers show that a representative sample of these trees contained very few hollows, with the only hollows noted being of small size on a mature Rosewood. In comparison, data collected within the proposed offset area showed tree hollow presence, while at a relatively low abundance, was consistently present in most sites.
- 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 woodland patches that are preferred 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 Rosewood, White Cypress and Buloke and, as such, 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 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. For Buloke it was found

that small hollows (<5cm entrance diameter) were consistently found in trees above 28cm dbh. No medium (5-15cm) or large tree hollows (>15cm) were recorded for Buloke at any tree diameter or height. In the case of White Cypress Pine it was found that no hollows were consistently recorded at any tree diameter or height. Therefore, it can be considered that limited habitat for the species is present.

2. Little Pied Bat (*Chalinolobus picatus*)

- A search of the BioNET and NSW Wildlife Atlas databases on the 19/2/2008 reveal no records of the species within the Gilgandra local government area where the subject property is located. Other records of this species occur both east and west of 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. Scattered Rosewood, White Cypress Pine and Buloke trees in a cleared paddock are unlikely to contain hollows available for breeding colonies of this species compared to the proposed eucalypt woodland offset area.
- Extensive surveys within the Brigalow Belt South Bioregion have recorded the species from the Pilliga province (the same as the subject property location). Habitats where the species was recorded were mainly ironbark, Brigalow (*Acacia harpophylla*), White Box (*Eucalyptus albens*), Pilliga Box (*E. pilligaensis*) and Grey Box (*E. macrocarpa*) (RACD 2002).
- 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 area of eucalypt woodland would thus be considered a more preferred 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 majority of the proposed offset area of eucalypt woodland is along a riparian zone and would contain more roost sites than the scattered trees in the development area.
- 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 area of eucalypt woodland would be the more preferred 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 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. For Buloke it was found that small hollows (<5cm entrance diameter) were consistently found in trees above 28cm dbh. No medium (5-15cm) or large tree hollows (>15cm) were recorded for Buloke at any tree diameter or height.

In the case of White Cypress Pine it was found that no hollows were consistently recorded at any tree diameter or height.

Therefore, it can be considered that limited habitat for the species is present.

- 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.

Rosewood is a small tree species that generally does not have loose bark for potential roost habitat, as is Buloke. Little Pied Bats have been located beneath the bark of dead White Cypress Pine trees on several occasions but such dead trees are not classed as native vegetation under the PVP Developer process.

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 area of eucalypt woodland is significantly more preferred habitat type for this species and contains both foraging and roosting habitat for the species.
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 area of eucalypt woodland is significantly more preferred habitat type for this species and contains both foraging and roosting habitat for the species.
3. The majority of species proposed for tree planting on the northern end of the property (in the area that acts to connect native vegetation along the watercourse to that on a laneway within the property) should be those most preferred by the two bat species within the local area in addition to those already present on similar soil types. It is therefore recommended that most plantings be of Poplar Box (*Eucalyptus populnea*) and Grey Box (*E. microcarpa*), interspersed by occasional Wilga (*Geijera parviflora*) and Belah (*Casuarina cristata*).

References:

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NPWS., 2002. *Darling Riverine Plains Biodiversity Survey Technical Report*. NSW National Parks and Wildlife Service, Western Regional Assessments Unit, Dubbo.

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Rhodes, M.P. and Hall, L.S., 1997. Observations on Yellow-bellied Sheath-tailed Bats *Saccolaimus flaviventris* (Peters 1867) (Chiroptera: Emballon uridae). *Australian Zoologist* **30** (3) p. 351-357.

Richards, G.C., 2000. *A report on the Preparation of Threatened Species Profiles and Environmental Impact Assessment Guidelines for the bat fauna of NSW*. Report prepared for NSW National Parks and Wildlife Service, Hurstville.

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