

## 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:** 8599

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 existing cultivation fields near Gulargambone. The subject property is located within the Castlereagh-Barwon sub-region of the Central West Catchment Management Authority area.

The trees proposed for removal consist of 202 scattered Western Rosewood (*Alectryon oleifolius*) with an average DBHOB of 56cm, 12 Grey Box (*E. macrocarpa*), 7 White Cypress Pine (*Callitris glaucophylla*) and 4 Belah (*Casuarina cristata*).

A sample of eight scattered Western Rosewood trees was undertaken by the CMA assessing officer with regards to the presence of tree hollows. Three of the trees sampled contained small hollows. The assessing officer stated that these trees were probably the only Rosewood in the paddocks that contained hollows as they were the largest diameter trees present. Three Grey Box trees were examined for hollows, with one tree having two small hollows and another large tree (158cm DBHOB) containing five medium – large hollows. No hollows were found in the single Belah tree or the three White Cypress Pine trees sampled.

The proposed off-set area on the property consists mainly of Poplar Box (*Eucalyptus populnea*), White Cypress Pine and Belah with some River Red Gum (*Eucalyptus camaldulensis*) present along the creek. These species have been adequately off-set but the lack of Western Rosewood in the off-set area means 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*).

Field surveys conducted by the CMA assessing officer in two portions of proposed off-set area show there were three hollow-bearing trees within a 20m x 50m plot in one area and one tree with hollows in the other. This is indicative of there being a higher abundance of hollow-bearing trees in the off-set areas than present in a few of the scattered paddock trees proposed for removal.

In addition to the proposed off-set areas, three sections have been identified which require tree planting of indigenous species in order to compensate for the number of trees required to meet the threatened species tool conditions. The tool requires only Western Rosewood to be planted to compensate for the trees removed from the cultivation paddocks, however, it would be impractical to re-plant only Western Rosewood as this species is not considered critical to the foraging habitat of the two threatened bat species.

The question that is asked is therefore:

Will the Little Pied bat and the Yellow-Bellied Sheath-tail-Bat be affected in their habitat from the removal of the Western Rosewood trees and will the use of the vegetation currently in the off-set area meet the 'improve or maintain' test?

**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 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 24/3/2010 reveal no records near the subject property at Gulargambone. 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 mainly a riparian corridor at woodland density and thus would be a more preferred foraging habitat 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 would therefore represent more preferred foraging 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 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. Data obtained by PVP officers show that a representative sample of these trees contained very few hollows, with the only hollows of note being on the largest trees.
- 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 riparian woodland corridors that are 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, 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 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. Therefore, it can be considered that limited roosting habitat for the species is present.

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

- A search of the BioNET and NSW Wildlife Atlas databases on the 24/3/2010 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 Western Rosewood trees in a cleared paddock are unlikely to contain hollows available for breeding colonies of this species. The mature eucalypts in the proposed offset areas are more likely to provide roosting habitat.
- Extensive surveys within the Brigalow Belt South Bioregion have recorded the species from the Pilliga Outwash province (closest to 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 mainly riparian eucalypt woodland 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, however the off-set area proposed consists mainly of a riparian corridor along a creek and thus provides higher quality habitat than that being removed.

- 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 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.

Therefore, it can be considered that limited roosting 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. Western Rosewood is a small tree species that generally does not have loose bark for potential roost habitat.

#### **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 tree corridors at a woodland density is a more preferred foraging habitat type for this 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 tree corridors at a woodland density is a more preferred foraging habitat type for this species.

3. With regard to the sections identified for tree planting (4e & 4f on the PVP map), preference should be given to encourage the establishment of those species already in the immediately adjacent offset areas, particularly if they are eucalypts or Belah. A small proportion of the trees to be planted (say 10%) should be Western Rosewood in order to compensate for the loss of that species from the cultivated paddocks.

#### **References:**

Ayers, D., Nash, S. and Baggett, K. 1996. *Threatened Species of Western New South Wales*. NSW National Parks and Wildlife Service, Hurstville.

Duncan, A., Baker, G.B. and Montgomery, N., 1999. *The Action Plan for Australian Bats*. Environment Australia, Canberra.

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

RACD., 2002. *Brigalow Belt South Bioregion (Stage 2) Vertebrate fauna survey, analysis and modelling projects*. Planning NSW, Sydney.

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.

Shelly, D., 2005. *Hollow occurrence in selected tree species in the Central West Catchment of New South Wales*. Department of Infrastructure, Planning and Natural Resources, Dubbo.

Shelly, D., 2006. *Vertebrate fauna of the Central West Catchment – Relationships to vegetation and habitat types*. Report to Central West Catchment Management Authority. Department of Natural Resources, Dubbo.

Smith, J., Ellis, M., Ayers, D., Mazzer, T., Wallace, G., Langdon, A. and Cooper M., 1998. *The Fauna of Western NSW: The Northern Floodplains Region*. New South Wales National Parks and Wildlife Service, Hurstville, Sydney.