APPENDIX 13 – PLANT COMMUNITIES IN MALLEE CLIFFS NATIONAL PARK

The following table was copied from Appendix C of *Mallee Cliffs National Park Draft Plan of Management: Planning considerations* (Office of Environment & Heritage, Sydney, NSW). Maps of Plant Community Types (PCTs) in this REF are based on the map produced by Morcom and Westbrooke (1990). The PCTs that match the Morcom and Westbrooke vegetation communities are given in the table below, except for two vegetation types found within the vicinity of the proposed activities that better fit the characteristics of alternative PCTs. These exceptions are explained below.

- The *Dodonaea viscosa* subsp. *angustissima* shrubland community mapped by Morcom and Westbrooke was interpreted by them as having developed following clearing of eucalypt open scrub, and in this REF this community is referred to as Derived shrubland from PCT 170, rather than as PCT 143 (the match given in the following table). This was done because the definition of PCT 143 (Benson et al. 2006) estimated its pre-European extent as 10,000-190,000 ha; that is, PCT 143 does not apply to a community derived from clearing eucalypt open scrub.
- The Morcom and Westbrooke community Herbland/open-herbland was interpreted by them to be a disturbed type, probably resulting from grazing pressure on chenopod shrublands and arid woodlands. The species that have established are mainly exotic grasses and forbs. In this REF, these communities are referred to as Disturbed annual saltbush forblands from PCT 166, rather than as PCT 165 (the match given in the following table). This was done because the herbland communities in the study area are mostly associated with heavy soils so were considered more likely to have been derived from PCT 166, in agreement with the Morcom and Westbrooke interpretation. Also, PCT 165 is characterized by Corkscrew grass, a species not noted as characteristic in the herblands by Morcom and Westbrooke.

Community name/VIS ID (Benson et al. 2006)	Veg Community Types (Keith 2004)	% of park	1990 Morcom & Westbrooke	Description
Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones / 170	Sand Plain Mallee Woodlands	60	1 *Eucalyptus gracilis/E. dumosa/E. socialis* open-scrub	This mallee community is the most extensive plant community in the park. It is found on sandy loams and solonised brown soils of the calcareous sandplains. The dominant eucalypts are snap and rattle (*Eucalyptus gracilis*), white mallee (*E. dumosa*) and red mallee (*E. socialis*). In addition, narrow-leaf red mallee (*E. foecunda*) and glossy-leaved red mallee (*E. oleosa*) occur but less frequently. The community is characterised by a diverse understorey which includes narrow-leaf hop-bush (*Dodonea viscosa* ssp *angustissima*), *Senna artemisioides, Zygophyllum spp., Eremophila glabra, Westringia rigida, Grevillea huegelii* and *Chenopodium curvispicatum*. This community is comparatively weed free but fire prone.
Linear Dune Mallee mainly of the Murray-Darling Basin Bioregion/171	Dune Mallee Woodlands	16	2 *Eucalyptus gracilis/E. dumosa/E. socialis* open-scrub with Triodia understorey	These mallee communities occur on low dune ridges where shallow sands overlie sandy clays. They are recognised as separate communities because of the dominance of the spinifex (*Triodia scariosa*) understorey. On deep red sands, the communities also have a rich shrub understorey other than spinifex. Understorey species include narrow-leaf hop-bush, *Eremophila glabra, Myoporum platycarpum, Senna artemisioides, Baeckea crassifolia, Acacia wilhelmiana, A. microcarpa* and *Pittosporum phylliraeoides.* Several species are restricted to these communities including desert heath-
Deep sand mallee of irregular dunefields of the semi-arid (warm) zone/172	Dune Mallee Woodlands			

Community name/VIS ID (Benson et al. 2006)	Veg Community Types (Keith 2004)	% of park	1990 Morcom & Westbrooke	Description
				myrtle (*Baeckea crassifolia*) and broom ballart *(Exocarpos sparteus*), are recorded at only a few localities in NSW. Because of its dense structure, mallee communities were not as heavily grazed and therefore they are the least modified communities in the park. The communities are comparatively weed free, but very fire prone.
Black Oak - Western Rosewood open woodland on deep sandy loams of Murray-Darling Depression and Riverina Bioregions/58	Semi-arid Sand Plain Woodlands	13	3 *Casuarina cristata* subsp. *pauper* low open woodland	This community occurs on calcareous plains of loamy solonised brown soils of inter-dune areas. Belah (the common name given to black oak in western NSW), typically occurs with rosewood (*Alectryon oleifolius*), although monospecific stands of either species may occur. This community is also often characterised by an understorey of tall and low shrubs including Mueller's daisy bush (*Olearia muelleri*), gallweed (*Zygophyllum apiculatum*), bladder saltbush (*Atriplex vesicaria*) and leafless ballart (*Exocarpos aphyllus*). Narrow-leaf hop-bush, silver cassia (*Senna artemisioides*), false sandalwood (*Myoporum platycarpum*), wait-a-while (*Acacia colletioides)* and black bluebush (*Maireana pyramidata*) often dominate the understorey. In the north of the park there is an unusual occurrence of wilga (*Geijera parviflora*), a species which is regarded as uncommon in the area. This community was utilised for grazing and has been moderately invaded by non-native species. Belah woodland does not readily carry fire and these communities were not severely burnt during the fires in 1975 and 1977.

Community name/VIS ID (Benson et al. 2006)	Veg Community Types (Keith 2004)	% of park	1990 Morcom & Westbrooke	Description
Sandplain Mulga tall open shrubland of the semi-arid and arid climate zones/119	Sand Plain Mulga Shrublands	<1	6 Mulga (*Acacia aneura*) open-woodland	Only one small patch of mulga occurs in the north of the park within an extensive area of belah woodland. The understorey of the community is dominated by species associated with the herbland community. Mulga is rare in south-west New South Wales due to extensive clearing for agriculture and is at the southern edge of its range at Mallee Cliffs (Benson et al. 2006).
Black Bluebush low open shrubland of the alluvial plains and sandplains of the arid and semi-arid zones/153	Aeolian Chenopod Shrublands	<1	9 *Maireana pyramidata* low open-shrubland	Black bluebush (*Maireana pyramidata)* occurs in small patches. Like pearl bluebush (*Maireana sedifolia*), this community was preferred by stock and was probably once more common in the park.
Pearl Bluebush low open shrubland of the arid and semi-arid plains/154	Aeolian Chenopod Shrublands	<1	8 *Maireana sedifolia* low open-shrubland	Two small areas of pearl bluebush occur in the park on soils with a high clay content and where pools of water accumulate following rain. This species was preferred by stock and was probably once more common on the park.
White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zone /28	Riverine Sandhill Woodlands	<1	4 *Callitris glaucophylla* low open-woodland	White cypress pine (*Callitris glaucophylla*) occurs as scattered individual plants within the belah community and is the dominant species in a few small areas. Many individual trees have died since the park was formed and little of the native understorey remains. It is likely that persistent overgrazing by sheep and rabbits has resulted in a lack of recruitment over time. White cypress was also favoured for fencing timber and suffered from fire. Given the isolated occurrence of white cypress in the park and their current state of health, the true composition of the community is unlikely to be restored.
Black Box grassy open woodland of rarely flooded depressions in south western NSW /16	Inland Floodplain Woodlands	<1	5 *Eucalyptus largiflorens* open-woodland	A small patch of black box (*Eucalyptus largiflorens*) occurs in the north west section of the park on heavy soils. The understorey consists mainly of non-native grasses and herbs.

Community name/VIS ID (Benson et al. 2006)	Veg Community Types (Keith 2004)	% of park	1990 Morcom & Westbrooke	Description
Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland of semi-arid and arid sandplains and dunes /143	Sand Plain Mulga Shrublands	<1	7 *Dodonaea viscosa* subsp. *angustissima* shrubland	In the park, narrow-leaf hop-bush is generally associated with mallee open scrub communities. However, In a number of sites, it occurs as a monospecific tall shrub community. The species is recognised as being favoured by grazing and is an early coloniser following clearing or disturbance of vegetation. The incidence of this community, therefore, probably reflects past grazing and clearing. Hop bush is considered by landholders as a major woody weed in the south-west corner of the state.
Corkscrew grass grassland/forbland on sandplains and plains in the semi-arid (warm) climate zone /165	Riverine Plain Grasslands	10	10 Herbland/open herbland	This vegetation type is a derived community which has resulted from the loss of woodland overstorey trees and shrubs due to former grazing over the past 100 years. The community typically occurs around the major watering points which were provided on the former property. Because the watering points were sited in areas of occluded drainage where the soils tended to be heavier grey clays, the original vegetation may have been black box, mulga, cypress pine or chenopod shrub steppe associations. The relative dominance of species in this community may vary dramatically with the extent and season of rainfall. This community is the most heavily invaded by non-native plant species.