

# (DRAFT ONLY) Surf Coast Shire Bio-mapping

Flora and Fauna of Nine Priority Reserves, 2006-07

A Report for Surf Coast Shire

Phoebe Macak, Arn Tolsma, Geoff Brown, Greg Horrocks,  
Ryan Chick & David Cheal



Arthur Rylah Institute for Environmental Research

April 2007



Arthur Rylah  
Institute

*Flora, Fauna &  
Freshwater Research*







## **PAINKALAC CREEK NATURE RESERVE**

---

<b>Location</b>	Great Ocean Road, Aireys Inlet
<b>Centre Point MGA</b>	246800 easting, 5739000 northing
<b>Surf Coast Shire Priority</b>	High
<b>Area</b>	16.2ha

### **Reserve Description**

Bordered by Painkalac Creek to the north, east and south, and housing set among woodland to the west, Painkalac Creek Nature Reserve is largely comprised of grassy vegetation associated with wetland and grassland communities. Some woodland is present around the creek-side edges. No official tracks exist within the Reserve; however, the close proximity of human habitation indicates a certain level of disturbance.

## Vegetation

This Reserve has been intensively mapped by Sinclair and White (2005) at a scale of 1:2,000. Assessment of habitat hectare values for very small patches of distinct vegetation communities (and at such a fine scale) would have been out of context with the rest of the current study and greatly reduced the field time available for other sites not previously subjected to such intensive study. Hence, the small areas of wetland EVCs (such as Spike-sedge Wetland, Saltmarsh (Aggregate), Saline Aquatic Meadow, Brackish Sedgeland and Estuarine Reedbed) identified in the previous study were incorporated into the larger EVC areas (Figure 3). Weeds were not a major concern in these wetland types, which contained similar species richness to the assessed EVCs (relative to their respective benchmarks). Even if assessed, all five EVCs would have scored the same as Estuarine Wetland (82) (Table 6).

A large mob of kangaroos was noted in the Reserve and all terrestrial vegetation showed signs of heavy grazing. However, the vegetation in the Painkalac Creek area has been greatly modified since European settlement by a combination of clearing and grazing (Sinclair & White, 2005), and it is likely that the current condition of the Reserve is partially an artefact of that early and prolonged disturbance.

The areas mapped as Grassy Woodland around the northern and eastern edges of the Reserve were highly modified and in poor condition, perhaps an artefact of a long history of grazing disturbance. The occurrence of *Eucalyptus ovata* was restricted to a single regenerating stand (see A in Figure 3). The lower strata here lacked diversity, although herbs and grasses were often difficult to identify adequately due to the effects of grazing. *Pteridium esculentum* was common, along with *Acacia melanoxylon* (Blackwood), *Bursaria spinosa* (Sweet Bursaria), *Leptospermum continentale*, *Poa sieberiana* (Grey Tussock-grass), *Themeda triandra* (Kangaroo Grass) and *Austrodanthonia* spp. Weeds of concern included *Rubus fruticosus* spp. agg., *Chrysanthemoides monilifera*, *Prunus* spp. (Plum) and *Anthoxanthum odoratum*.

Of most concern was a large stand dominated by *Rubus fruticosus* spp. agg. and *Chrysanthemoides monilifera* (B), where weed cover exceeded 50%. Native species richness was low and this area attracted the lowest habitat hectare score from all Reserves. Area C was also identified by Sinclair and White (2005) as Grassy Woodland, but was presently dominated by wattles such as *Acacia longifolia* subsp. *sophorae* (Coast Wattle) and *Acacia melanoxylon*. Shrubs, notably *Leucopogon parviflorus* and *Leptospermum continentale* were common, but spaces between the *Poa* tussocks tended to be heavily grazed and weedy.

Some interesting patches of *Acacia stricta* (Hop Wattle) are found in the south-western end of the Reserve, and have been the subject of some debate (pers. comm., Steve Sinclair and David Cameron, ARI). This species normally exists in the form of isolated individuals, yet the plants here have suckered vigorously, forming tight clonal clumps. It is not known whether these plants represent a non-indigenous provenance (hence should be removed), are a distinct taxonomic entity (in which case they deserve further study) or are simply responding to changing edaphic conditions and management regimes (in which case they require no action). Unlike the EVCs in the Reserve (which are listed as Endangered, and of very high conservation significance), *Acacia stricta* is not under any threat. The recommended strategy at this stage is the removal of any new clumps, and monitoring of the existing clumps (David Cameron, pers. comm., ARI).

The presence of *Themeda triandra* in the Grassy Woodland suggests that this vegetation type will benefit from burning at appropriate intervals. A balance must be found between a regime suited to the *Themeda* grass (no more than 5 to 6 years to avoid closure of the tussock grass sward and eventual senescence of tussocks and the vegetation community

(Morgan & Lunt, 1999)) and that suited to grassy woodlands (no less than 6 to 7 year intervals to allow shrubs to persist (Barlow, 1998)). We suggest mosaic burning at around 6 to 7 year intervals for each patch to ensure that all species can persist. The resulting low-intensity fires should create a patchy distribution of different age-classes, including patches burnt at less than the optimum fire frequency (favouring woody species), and patches burnt at greater than the optimum fire frequency (favouring non-woody species). In any event, the Fire Management Plan (Moulton, 1999) should be updated to include an appropriate ecological burning regime.

Brackish Grassland was dominated by *Poa labillardierei* (around 50% cover), with lesser occurrences of *Austrodanthonia* spp., *Distichlis distichophylla*, *Calocephalus lacteus* (Milky Beauty-heads), *Acaena ovina* (Australian Sheep's Burr) and other herbs. Heavy kangaroo grazing was evident in the inter-tussock spaces, making identification of grass species difficult, and weed cover was relatively high, preventing the site condition score from being higher. Rosette weeds were common, reflecting the grazing pressure, and included *Cirsium vulgare* (Spear Thistle), *Hypochoeris radicata*, *Sonchus oleraceus* and *Plantago lanceolata*. No rare species were noted, although *Lachnagrostis robusta* (Salt Blown-grass) and *Lawrenzia spicata* (Salt Lawrenzia) had been recorded here in previous surveys (Sinclair & White, 2005).

Estuarine Flats Grassland was dominated by *Poa poiformis*, *Poa labillardierei*, *Samolus repens* (Creeping Brookweed), *Acaena novae-zelandiae* (Bidgee-widgee), *Apium prostratum* (Sea Celery), *Ficinia nodosa* (Knobby Club-sedge) and *Distichlis distichophylla*. Occasional weeds were noted, particularly toward the outside edge, including *Hypochoeris radicata*, *Cirsium vulgare*, *Anagallis arvensis* and *Rubus fruticosus* spp. agg.

Estuarine Wetland was dominated by *Samolus repens*, *Distichlis distichophylla*, *Sarcocornia quinqueflora* (Beaded Glasswort), *Poa poiformis*, *Ficinia nodosa* and *Phragmites australis*. Few weeds were evident, leading to this wetland EVC obtaining a higher habitat hectare score than the other (drier) EVCs in the Reserve. This phenomenon was also noted in other reserves examined during the current research, as vegetation communities that are periodically inundated by salt water tend to have minimal weed invasion (Sinclair & White, 2005).

Landscape component scores were assisted by the size of the Reserve (10-20 ha class), and the relatively high amount of native vegetation in the surrounding area. However, the residential development to the west of the Reserve (leading to incremental reductions in surrounding native plant cover) is likely to reduce the landscape score by several points in the future.

**Table 6. Habitat hectare scores for individual Ecological Vegetation Classes in Painkalac Creek Nature Reserve, November 2006.**

EVC	Area (ha)	Site score (max 75)	Landscape score (max 25)	Total score	Bioregional Conservation Status and Conservation Significance
Grassy Woodland (A)	1.1	33	14	47	Status - Endangered Significance – Very High
Grassy Woodland (B)	0.9	12	14	26	Status - Endangered Significance – High
Grassy Woodland (C)	3.0	30	14	44	Status - Endangered Significance – Very High
Brackish Grassland	8.0	61	15	76	Status - Not listed for this bioregion. Endangered in Victorian Volcanic Plains Significance – Very High
Estuarine Flats Grassland	2.5	60	15	75	Status - Not listed for this bioregion. Endangered in other bioregions Significance – Very High
Estuarine Wetland	3.8	67	15	82	Status - Endangered Significance – Very High

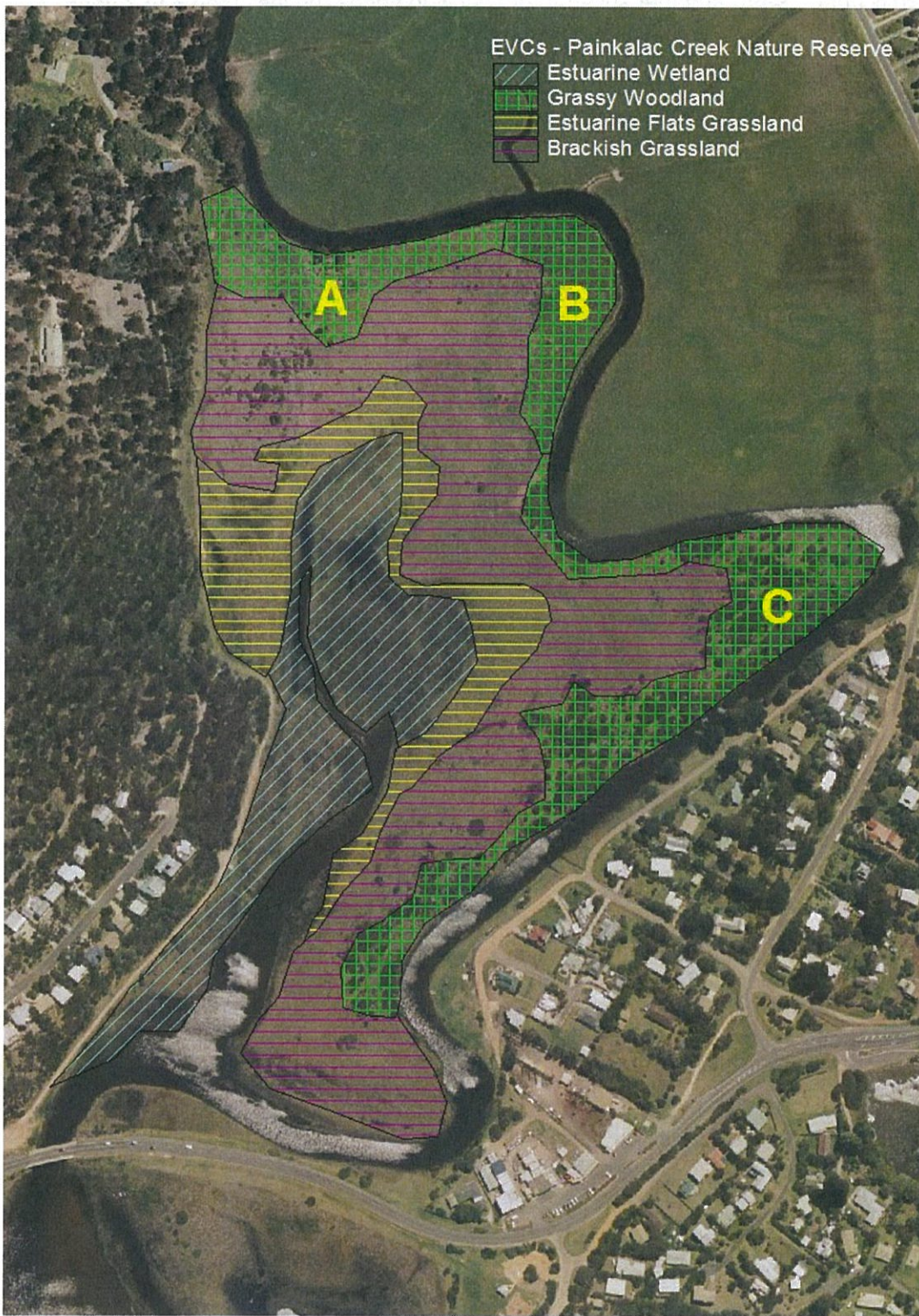


Figure 3. EVC mapping of Painkalac Creek Nature Reserve, ARI 2006

## Fauna

A total of 48 species was recorded from Painkalac Creek Nature Reserve, comprising 12 mammals, 34 birds and two reptiles (Table 7). These include a number of incidental observations. Surveys were carried out within the northern section of the Reserve.

### Mammals

A resident mob of Eastern Grey Kangaroos (40 individuals were recorded on one occasion) was regularly observed during numerous visits by the survey team. One Black Wallaby was seen and this species was also recorded from hair samples; however, they are more likely to be resident in the nearby woodland to the west and probably spend limited time in the grasslands. No native small ground mammals were recorded. Six bat species were recorded during the survey, most by bat detectors while only one individual bat was trapped: the Lesser Long-eared Bat. This low capture-rate is probably a reflection of the lack of natural fly-ways among the vegetation in which to place harp traps. Four introduced mammals were detected (House Mouse, Dog, Red Fox and European Rabbit).

The threatened Swamp Antechinus *Antechinus minimus* has been recorded close by (AVW) and potential habitat exists within this Reserve in the form of dense tussock grassland (Menkhorst (Ed), 1995). This species is considered Near Threatened in Victoria (Department of Sustainability and Environment, 2003). Dusky Antechinus was caught during the survey in similar vegetation in the neighbouring Mellors Swamp, and it is possible that populations exist here also.

It is possible that additional mammal species may reside in the southern, more isolated part of the Reserve which was not covered by the current surveys.

### Birds

Most sightings from this Reserve were of birds flying through the area that would not normally utilize the site. For example, Yellow-tailed Black Cockatoo, Sulphur-crested Cockatoo and Gang-gang Cockatoo were all recorded flying high over the site. There were also a number of smaller resident species recorded during the survey, such as Brown Thornbill, Grey Fantail and Silvereye, most of which were recorded in the Grassy Woodland EVC in the north of the Reserve.

The more central Estuarine Grassy areas were relatively depauperate, with only occasional sightings of Skylarks. The Skylark, Common Starling and House Sparrow were the only introduced species encountered during the survey.

The Great Egret, which was recorded in the streamside vegetation of Painkalac Creek, is officially listed as vulnerable (Department of Sustainability and Environment, 2003). It was the only species recorded in the Reserve during the survey that is listed as threatened.

### Herpetofauna

The only two reptile species recorded during the survey were the Garden Skink and Common Blue-tongued Lizard, though other common species are also likely to utilise the Reserve, including the Southern Grass Skink, Tussock Skink and Tiger Snake. The occurrence of woodland adjacent to the western boundary of the Reserve provides additional habitat heterogeneity in the general area and most likely supports other reptile species, though this habitat is decreasing in size and quality through housing development.

Depending on the level of salinity, some common frog species are likely to be found on the fringes and towards the northern end (away from the coast) of the Reserve.



### Key management recommendations

- Weed control, particularly of well-established Boneseed and Blackberry infestations
- Strategic planting of canopy eucalypts in riparian zone
- Monitoring of *Acacia stricta* clumps
- Development of park management plan
- Updating of existing Fire Management Plan to include an ecological burning regime for the Grassy Woodland
- Ensure adequate buffer zone maintained on western edge
- Predator control
- Creation of small creek pondages in southern section to provide increased habitats for waders



**Table 7. Fauna species recorded at Painkalac Creek Nature Reserve by ARI, October 2006-March 2007.**

<b>Common Name</b>	<b>Species</b>
Eastern Grey Kangaroo	<i>Macropus giganteus</i>
Black Wallaby	<i>Wallabia bicolor</i>
White-striped Freetail Bat	<i>Tadarida australis</i>
Lesser Long-eared Bat	<i>Nyctophilus geoffroyi</i>
House Mouse	<i>Mus musculus</i>
Dog	<i>Canis familiaris</i>
Red Fox	<i>Vulpes vulpes</i>
European Rabbit	<i>Oryctolagus cuniculus</i>
Pacific Black Duck	<i>Anas superciliosa</i>
Grey Teal	<i>Anas gracilis</i>
White-faced Heron	<i>Egretta novaehollandiae</i>
Great Egret	<i>Ardea alba</i>
Swamp Harrier	<i>Circus approximans</i>
Brown Falcon	<i>Falco berigora</i>
Nankeen Kestrel	<i>Falco cenchroides</i>
Masked Lapwing	<i>Vanellus miles</i>
Brush Bronzewing	<i>Phaps elegans</i>
Yellow-tailed Black-Cockatoo	<i>Calyptorhynchus funereus</i>
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>
Sulphur-crested Cockatoo	<i>Cacatua galerita</i>
Crimson Rosella	<i>Platycercus elegans</i>
Shining Bronze-Cuckoo	<i>Chrysococcyx lucidus</i>
Laughing Kookaburra	<i>Dacelo novaeguineae</i>
Sacred Kingfisher	<i>Todiramphus sanctus</i>
Superb Fairy-wren	<i>Malurus cyaneus</i>
Brown Thornbill	<i>Acanthiza pusilla</i>
Red Wattlebird	<i>Anthochaera carunculata</i>
Little Wattlebird	<i>Anthochaera chrysoptera</i>
New Holland Honeyeater	<i>Phylidonyris novaehollandiae</i>
Grey Shrike-thrush	<i>Colluricincla harmonica</i>
Grey Fantail	<i>Rhipidura fuliginosa</i>
Australian Magpie	<i>Gymnorhina tibicen</i>
Pied Currawong	<i>Strepera graculina</i>
Australian Raven	<i>Corvus coronoides</i>
Little Raven	<i>Corvus mellori</i>
Skylark	<i>Alauda arvensis</i>
House Sparrow	<i>Passer domesticus</i>
Red-browed Finch	<i>Neochmia temporalis</i>
Welcome Swallow	<i>Hirundo neoxena</i>
Golden-headed Cisticola	<i>Cisticola exilis</i>
Silvereye	<i>Zosterops lateralis</i>
Common Starling	<i>Sturnus vulgaris</i>
Garden Skink	<i>Lampropholis guichenoti</i>
Common Blue-tongued Lizard	<i>Tiliqua scincoides</i>

