Painkalac Creek Reserve
Fire Management Plan

Prepared for Surf Coast Shire
by Peter Moulton January 2000
Revised 2010 by Donna Groves
F10/78 D10/3737

TABLE OF CONTENTS

1 Introduction

The Painkalac Creek Reserve is sited immediately north of the Great Ocean Road between the townships of Aireys Inlet and Fairhaven. It is about 16ha in area and covers part of the broader estuary flood-plain, or wetland, that includes private land to the north and Mellor's Swamp to the south.

Both Painkalac and Mellors Swamp support a number of significant ecological vegetation classes which provide habitat for a large number of native fauna species.

The Painkalac Creek floodplain area is subject to an Environmental Significance Overlay in the Surf Coast Shire's Planning Scheme (2000). The reserve is Council freehold and a Trust for Nature covenant has been placed on the land title to protect the high conservation values in perpetuity.

The Creek itself is a high priority waterway identified in the Corangamite River Heath Strategy. The Eagle Rock Marine Sanctuary is located near the mouth of the Painkalac estuary. The reserve is appreciated for its naturalness and forms an important part of the local landscape.

2 Context of plan and purpose

The 2000 Fire Management Plan was commissioned by Surf Coast Shire Council to assist with developing fire management approaches to balance community safety with protecting the reserve's natural assets. The implementation of the Fire Management Plan has been monitored over the past 9 years. This 2010 Plan updates the 2000 Plan, drawing on current emergency management, fire ecology and biodiversity policies and approaches.

It should be acknowledged that the management of reserves needs to take into account a number of issues, with fire management being only one of these. The on-ground implementation of Fire Management Plans may require some level of flexibility or interpretation by Council staff. For example, widths of breaks and buffers, period of burn rotations, flora and fauna information etc may vary over time and according to site specific factors or budget restraints. In all instances however, the general principles behind the recommendations should be maintained.

3 Reserve management objectives

The overall management objective of Painkalac Creek Reserve is to "conserve and enhance the indigenous flora and fauna of the reserve and to manage for nature conservation".

The reserve does not have a management plan. An estuary management plan of the Painkalac Creek (2006) resulted in a number of positive outcomes for the creek environs. The values of the reserve are managed in accordance with contemporary biodiversity conservation and management principles and the endorsed Fire Management Plan.

4 Asset assessment

4.1 Flora

The reserve vegetation has been intensively mapped by Sinclair and White (2005) at a scale of 1:2,000 and is detailed in the 2007 report "*Surf Coast Shire BioMapping*" by Arthur Rylah Institute as part of a Council reserve flora and fauna assessment project.

For Surf Coast Shire, the conservation status of Ecological Vegetation Classes is based upon the representation of that EVC across a defined bioregion. Painkalac Creek Reserve (and Mellors Swamp) is contained within Otway Plain Bioregion within the Corangamite Catchment.

In their 2005 report "*Mapping Native Vegetation in the Painkalac Creek Estuary, Aireys Inlet*", a report to the Surf Coast Shire, Sinclair and White mapped a total of 13 EVCs (Attachment 2) across Painkalac Creek and Mellors Swamp Reserve, which broadly fall into three categories:

- Estuarine/Floodplain EVCs that are influenced by salinity;
- Freshwater wetland EVCs on the floodplain; and
- Coastal dune EVCs.

Estuarine/Floodplain EVCs

Saline Aquatic Meadow (rare)

Estuarine Reed Bed (not previously mapped in the region)

Coastal Saltmarsh (vulnerable)

Estuarine Wetland (endangered)

Brackish Sedgeland (vulnerable)

Estuarine Flats Grassland (not previously mapped, likely to be vulnerable or endangered or naturally rare)

Brackish Grassland (not previously mapped, likely to be endangered in bioregion and the state)

Modified Woodland (endangered)

Freshwater Wetland EVCs

Tall Marsh (none assigned, previously mapped as Reed Swamp which is vulnerable)

Spike Sedge Wetland (none assigned, not previously mapped)

Sedge Wetland (none assigned, not previously mapped)

Coastal Dune EVCs

Coastal Dune Scrub (none assigned, not previously mapped)

Coastal Alkaline Scrub (none assigned, not previously mapped)

Two significant species were noted in the Painkalac Creek Reserve in 2005 which are noteworthy:

Salt Lawrencia (*Lawrencia spicata*) Rare in Victoria.

This herb was recorded in a single quadrat by Carr *et al*., (1990) (D19025, 144o05'38" E, 38o28'02' S), probably in an area transitional between Brackish Sedgeland (EVC 13) and Brackish Grassland (EVC 934). This species was not noted in the 2007 study, although no targeted searches were made.

Salt Blown-grass (*Lachnagrostis robusta*) Rare in Victoria.

Several plants of this grass were noted scattered in Brackish Grassland (EVC 934). An incidental record of this species (I 11208) was entered into the FIS for the Painkalac Creek estuary. This species is inconspicuous, and may also be difficult to distinguish from other *Lachnagrostis* species in the field (*Lachnagrostis aemula* was observed nearby).

4.2 Fauna

A total of 48 terrestrial vertebrate species have been recorded in Painkalac Creek Reserve, comprising 12 mammals, 34 birds and two reptiles (*ARI, 2007*). Gibson (2009, unpublished) compiled a list of over 200 bird species in the valley over time.

Mammals

No native small ground mammals were recorded. Six bat species were recorded during the survey including 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.

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.

Birds

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.

Great Egret

- Listed as vulnerable.
- Nest in trees over the water.
- Breeding Season October – December.

4.3 Cultural heritage

The reserve is included in the Cultural Heritage Sensitivity Areas mapping. Under the Aboriginal Heritage Act 2006 a Cultural Heritage Management Plan (CHMP) is required if all or part of a proposed activity is in an area of culture heritage sensitivity, and all, or part of the activity is a high impact activity. The sensitivity areas maps are intended to assist users to identify areas of cultural heritage sensitivity. The maps provide indicative information about the location and extent of areas of cultural heritage sensitivity. Decisions about the need to prepare a Cultural Heritage Management Plan in relation to a proposed activity should be made with reference to the Aboriginal Heritage regulations.

4.4 Social

Painkalac Creek Reserve is managed primarily for conservation and visitation by the community is usually associated with activities aligned with protecting the reserves natural values. Fishing occurs at distinct locations on the creek banks and canoeing is a regular activity, facilitated by a canoe launching platform located on River Road. The estuary is utilised by environmental educators and school groups.

5 Past fire management

Prior to 2000, the Painkalac Creek Reserve was subject to a regime of fuel reduction burning under a plan developed between the Department of Sustainability and Environment (formerly the Department of Conservation and Natural Resources), and the Aireys Inlet Country Fire Authority Brigade, for a period of over 8 years. This plan was adopted as a formal attachment to the Surf Coast Shire's former Municipal Fire Prevention Plan, which was replaced by the Community Safety Strategy (now the DRAFT Municipal Emergency Management Plan).

The plan advocated rotational burning of reserve units, although some sections of the reserve such as a 20m buffer along the creekline were excluded from burning.

Units 1 to 5 were specified to be burned on a 5 year rotation while areas 6 and 7 were to be burned every 3 years. A summary of the actual burning rotations to date is as follows;

Area 1 - has not been burned

Area 2 - burnt 90/91

Area 3 - was subject to a burn in season 84/85 (after also having been burnt in the 1983 Ash Wednesday fires) and again in October 1997.

Area 4 - was burnt April 1996

Area 5 - was burnt 1993

Area 6 - was burnt March 1992, December 1995 and March or April 1999

Area 7 - was burnt 1987/87, March 1994 and October 1997.

Slash breaks had been established as planned fire control lines or as fuel reduced buffers between the Reserve and adjacent private property. An access track off the Great Ocean Road is located in the south-west corner of the reserve. The track has a locked chain allowing only management vehicle access although pedestrians can utilise the track year round. This track is generally aligned with the western perimeter of the Reserve.

6 Fire history / Burn history

For specific comments on fire history of the reserve see section 5 above.

General comments about fire history in the area:

The fire history prior to white settlement can only be estimated on influencing factors such as rainfall, incidence of thunderstorm and lightning activity and the remnant vegetation type now evident. The Aireys Inlet/Fairhaven area falls within a rain shadow of the Otway Ranges (Ecological Horticulture et al., 1990) and is subject to a relatively mild, maritime climate with approximately 725mm of rainfall per annum with the driest month being January (mean rainfall per month of 31mm). About three quarters of thunderstorm activity occurs over the mid-Autumn, Summer and early Spring months between October to March (Geelong Weather Service). It would be expected that many of these thunderstorms would have been accompanied by lightning activity. These factors, and the presence of Eucalypt-dominated forests with their high proportion of sclerophyllous understorey, provide some indication that fires were probably common events in the area.

As an approximation, minor fires would have occurred in the region on a frequency of every several years or so, while major fires over extended areas may have been events occurring in the order of a few decades. The intensity would have been dictated by weather and past rainfall.

Natural fire frequencies in wet gullies and wetlands would have been far less due to the greater moisture-retaining properties of the vegetation and soils, making them less prone to pre-curing and burning.

With the advent of settlement, types of ignition sources have increased and a more common cause of fires is from arson, accident or neglect. The latest major fire to

affect the area was the 'Ash Wednesday' fire in 1983, which originated near the Deans Marsh sawmill. This fire burned across a large expanse of the Otway Ranges from Lorne to Bells Beach. Painkalac Creek reserve was burnt as the fire spotted ahead of the main front.

7 Fuel hazards

Fuel hazards comprise elevated fuel, bark and surface fine fuels. The fuel hazards can be expressed in terms of an individual component rating (e.g. bark hazard) and an overall site hazard rating (i.e. the combination of three components). An approximate equivalent fuel loading (tonnes/ha) can be estimated from the individual or combined fuel hazard ratings. Fuel Hazards were assessed according to methods outlined in McCarthy, Tolhurst and Chatto (1998)

While some trees and shrubs are present on the reserve their contribution to the total fuel hazard rating is considered minimal. The tussocks and reeds can be incorporated into the fine surface fuel hazards in addition to the litter bed layer. While some flexible interpretation of the litter-bed layer is required in measuring this component in a wetland environment (given that the most recent guidelines for fuel hazard assessments are based on dry sclerophyll forest vegetation type) it was generally measured at less than 15mm in depth. This constitutes only a Low hazard rating but the presence and percentage cover of the tussocks elevate this fuel component into a Moderate hazard level. Since there is no other appreciable fuel hazards apart from this cover, it can be considered that Painkalac Creek reserve supports an overall fuel hazard rating of Moderate with an equivalent fuel load of between approximately 4 to 8 tonnes/ha.

8 Fire risks

The assessment of risk associated with an unplanned fire takes into account not only fuel hazards but many other elements including ignition risk, site characteristics (size, aspect and topography, buffers, adjoining land uses and assets, proximity of fire suppression agencies, etc) and local community preparedness.

The fuel hazards of the Painkalac Creek Nature Reserve have been dealt with in the above discussion. Other risk elements associated with the reserve are generally confined to residential and commercial properties along the eastern (Aireys Inlet) and western (Fairhaven) perimeters. No significant risk is associated with visitor use or other recreational uses.

The risk to nearby assets from an unplanned fire confined within the reserve is considered low to moderate. With the exception of winds originating directly east or west, those that originate from the southern or northern quarters will tend to be channelled along the length of the reserve due to topographical features of the valley and bordering hills. On severe fire weather days, fire intensity and spotting activity may not match that of the forested areas of the region, but the rate of spread would be expected to be far greater.

The residential properties on the western aspect of the reserve have a relatively dense cover of trees and shrubs although many properties are well maintained with grassed areas and gardens as common features around the houses. They are generally located on an east-facing slope of moderate to high grade.

These houses face the greatest risk from fire in the reserve. However, they would rarely be subject to a direct approach by the head of a fire but rather its flank as it progresses along the length of the reserve. The access track between the properties and the reserve forms a barrier that may limit fire spread, although remote spotting will allow a fire to continue into the developed area. The risk to this developed area associated with a fire in the reserve is considered comparatively lower than the risk associated with fire progressing through the forested region occurring in the north-west-south-east arc.

Buildings, including residential and commercial properties, are also located along the eastern aspect of the reserve. The land is relatively flat and incorporates significant fuel reduced buffers between the reserve and property assets. These buffers include unmade roads, slashed areas along the creek and the creek itself.

The northern aspect is open pasture land which is grazed. Mellors Swamp and the coastal dune system are located in the southern aspect.

General comments on risk

The elements that increase fire risk include;

- Unoccupied or poorly prepared residences during an unplanned fire event
- Many houses are not permanently occupied and act as holiday retreats. Research indicates that most houses destroyed in unplanned fires results from ember attack. In the absence of people attending to small spot fires in or around the home caused by burning embers, there is potential for greater damage as the fires develop.
- Additionally, the construction and design of many houses facilitate greater chance of ember attack. Many houses also feature wooded cladding and verandahs, exposed under floor spaces, steep-pitched corrugated roofing and large, south facing windows to take advantage of the coastal vista.
- Accidental or intentional ignition sources.
- The visitor use of the reserve is low. Fishing along the creek adjacent to the Great Ocean Road occurs frequently but it would not be expected that deliberate acts of arson would occur given the high visibility of this activity by residents and motorists.
- Ignition sources may include lightning, sparks from slasher blades (fire prevention works and private property works) and discarded materials such as matches and cigarette butts.

9 Issues for consideration in developing current fire management approaches

Current approaches to fire management in the Painkalac Creek Reserve are detailed in section 10. The following issues have been considered in developing the current fire management approaches.

9.1 Fire Management Zones

Effective fire management needs to incorporate the principles of risk management. This approach considers the nature, causes and level of risk and the measures or treatments to reduce those risks. The degree of risk associated with fires in particular areas is a critical factor that determines both the type and level of fire management needed. While the reserves represent a fire environment, by definition they are not the risk; it is the people and buildings that represent the risk factor in or near such an environment.

Fire management on public land is defined by fire management zones which indicate the primary integrated fire management purpose for an area of land. Zones are determined in consideration of the strategic importance of fire protection to the areas, the appropriateness and practicability of burning and other fuel management techniques, location of natural and built assets and other management objectives for the area (*Code of Practice for Fire Management on Public Land, 2006*). The zones are the Asset Protection Zone, Strategic Wildfire Moderation Zone, Ecological Management Zone and Prescribed Burning Exclusion Zone. Each management zone has a particular objective; the Asset Protection Zone is primarily managed for asset protection, the Strategic Wildfire Moderation Zone is primarily managed for strategic fire prevention and suppression whilst having regard to protection of biodiversity and the Ecological Management Zone is managed for ecological purposes. The desirable maximum overall fuel hazard is “moderate” for the Asset Protection Zone and “high” for the Strategic Wildfire Moderation Zone.

The reserve is not contained within a defined Asset Protection Zone; however areas further to the west and north east are included. The risk assessment contained in the 2000 Fire Management Plan and retained in the 2010 FMP states that “the risk to nearby assets from an unplanned fire confined within the reserve is considered low to moderate”.

The objective of fire management within the reserve is to manage vegetation to maintain and improve ecological function and enhance biodiversity values.

9.2 Burning for asset protection

The aim of fuel reduction burning is to modify fuel hazards during moderate weather conditions so that unplanned fires burn at controllable intensities. The lowered intensities may increase the effectiveness of suppression strategies, or defensive efforts to protect capital assets.

The wetland can be seen as a major landscape unit that separates the forested coastal hills to the west and to the east. The wetland/floodplain land unit supports

lower fuel hazards than that which occurs in the surrounding forested area. In the past, some viewed the reserve as a broad 'firebreak' to reduce the risk of fire spread between Fairhaven to the west and Aireys Inlet to the east. In recent times, the objective of township fire protection has moved to fuel reduction activities on public land surrounding the township (mulching, burning) and reduction of elevated fuels (woody weeds) on private land within defined Asset Protection Zones.

A number of concepts relevant to fuel reduction burning and its role in fire risk minimisation are worthy of comment. The first is that the traditional measure of hazard, i.e. fuel accumulated since the last fire, does not equate directly with the risk faced by an asset, although it is certainly an important part of the equation. Buildings subject to a high potential hazard may have a surprisingly low actual risk due to good or fortuitous management of the building and a good response during the actual danger period. Conversely, buildings which appear to be subject to a low level of hazard may be subject to surprisingly high levels of risk, due to poor or unlucky management and/or a poor response by the occupants during the fire.

The second important concept is that reducing fuel hazards does not necessarily mean burning must be involved. Inappropriate or poorly planned burning may, potentially increase the critical elements of the fuel hazard, and it is possible to significantly reduce hazards by other means. In particular, mechanical removal of ground fuel, thinning of the shrub layer, planting of non-flammable screening vegetation and removal of rubbish (e.g. garden prunings which are often present in the urban/bush boundary) may reduce the hazard far more easily and efficiently than a cool fuel reduction burn.

A third concept, which is very relevant to Painkalac Creek reserve, relates to the timeframe over which fuel reduction burning remains beneficial in reducing fuel loads. Planned burns in dry sclerophyl woodlands and forests rely on reducing surface fine and bark fuels over an extended period (elevated fuels may return within a short time after fire as a result of high regeneration rates from soil-stored seed or rootstock. A second successive burn within a short time (about 1-3 years) would change the floristics and structure of the elevated fuel component). Accumulation rates of the fine surface fuels and the re-establishment of the bark layer, particularly of the fibrous bark species, are important factors that dictate the time frames over which fuel reduction burns remain effective.

While no data are presented here to support the argument, it is generally agreed that grasslands reach a pre-fire, fuel load condition significantly quicker than forests or woodlands after a burn event (although this load would be appreciably less than a forest/woodland environment). The dominant species in the wetland/grassland of Painkalac Creek reserve are perennial grasses that produce new growth every year and can regenerate vegetatively from rootstock if the above-ground biomass is removed or burnt. This factor has significant implications on the benefits of fuel reduction objectives in such vegetation communities. Put simply, fuel reduction burning or slash breaks would have little impact on minimising the spread of major fires such as occurred in Ash Wednesday because of the potential for excessive remote 'spotting activity' under extreme wind conditions - and the fact that the Poa grassland would likely support a fire even after having been burnt the previous season. Under low to moderate fire weather conditions, the reserve may play an important role in limiting fire spread due to the presence of natural features such as

the creek and waterlogged areas. Many character species of the wetland/grassland are also less prone to burning or easy pre-curing because of high moisture retention properties.

9.3 Burning for ecological management

The 2000 Fire Management Plan recommends planned burning only be considered as a management option specifically for habitat and biodiversity maintenance when clear objectives have been established. Given the suite of vegetation classes present, their conservation significance and lack of knowledge concerning their response to fire, planned burning to promote biodiversity is not considered to be a priority as a management tool at this time.

General comments on ecological burning from the 2000 Plan:

Most fire research has focused on grasslands, grassy woodlands and dry sclerophyll forests. The responses of wetlands to fire has had less attention simply because these natural systems are far less represented in our landscape and they also contribute far less to problematic fires than those associated with the vegetation communities mentioned above. However, given these limitations, a number of generalisations can be made about the effects of fire on wetland ecology, namely;

A large proportion of wetland communities are dominated by plants that are monocotyledons and regenerate either by lignotubers, tubers and rhizomes, and include species that are adapted to periodic drying and wetting. Their capacity to endure the impacts of all but very intense fires means that they may not suffer any long-term effect from a single fire event. However, repetitive fires on a short rotation may deplete the energy reserves of these organs or eventually expose them to fire where the organic surface layer is lost or where fire burns sub-surface peat. Similarly, the rootstock may be damaged or killed by heat from an intense fire where the insulation tolerances of the soil are exceeded.

New growth after fire is also subject to grazing pressure. This pressure becomes more significant as the presence of grazing animals increases and as the burn area decreases in size. Rabbits, kangaroos and wallabies are common on Painkalac Creek reserve and may account for significant pressures placed on newly burnt areas.

Cool burning fires are likely to give rise to short term increases in nutrient availability and this factor combined with lowered competition for space may provide greater chances for weed colonisation, especially where weeds are present as seed in the soil.

The effects of fire on fauna are very much a function of intensity and season. Low intensity fires on a small scale (in context with the vegetation unit subject to fire treatment) are likely to produce unburnt/poorly burnt vegetation that allows refuge for escaping animals. The more mobile the animal, the greater the chance of escape.

Animals differ in their food and habitat requirements. Each may have a particular preference towards specific plants, structural compositions and flowering stages that may be disrupted or affected by a particular burning regime.

The effect of fires on wetland hydrology may be variable but it would be expected that

that factors such as fire intensity and season, post-burn climate conditions, vegetation recovery following fire and the soil properties and topography would play a major part in how, or to what extent, hydrological balances are altered. Effects may include deceased interception of rainfall due to the lack of vegetation and litter-bed cover, increased runoff and higher creek flows, increases in suspended sediments and soil erosion.

Having outlined some of the effects of fire on wetlands, it is worth making two important points in relation to the wetlands and fire as a summary.

Fire is recognised as natural phenomena affecting wetlands and floodplains, and it will remain as one of the continuing physical factors of our south-eastern Australian environment.

Some species have a level of dependency on fire for continued existence. These species include both plants and animals. There are examples where fire has been trialed as a management tool to improve wetland habitat for some fauna species including Brolga and ducks, Ground Parrot, Heath Rat, New Holland Mouse and King Quail (see CNR, 1996 for specific references). For this reason, fire should not be discounted as a management option.

Flora considerations:

In developing an ecological burn program, the fire cycle and fire response categories of vegetation classes are used to determine areas to be included and excluded from fire, and the interval at which fire should be applied to maximize flora species diversity. The current fire ecology science available does not adequately describe the effect of fire on the EVCs present in Painkalac Reserve.

Additionally, frequent planned burns have potential to produce adverse impacts on the natural wetland values and even create a greater fuel hazard condition posed by a gradual but marked change in vegetation structure (mostly a contribution of elevated woody weed species) and the potential threat of invasive weeds as a result of burning. For example, the pause in burning since 1999 has halted the post fire germination of new plants and has allowed efforts to remove all mature Boneseed plants and an annual follow up campaign.

Fauna considerations:

In 2009, DSE developed an approach to better incorporate the needs of vertebrate fauna into fire ecology assessments that may be used to subsequently inform fire operations plans. The approach can help conceptualize the complexities of fire and fauna interactions and facilitate a more logical and reasoned approach in decision making.

The fauna approach is based on a suite of habitat parameters associated with the growth stages of different vegetation types (ecological vegetation divisions, EVD's*) and the selection of key fire response fauna species (KFRS) that are known to occur within in each EVD. The fauna response categorization method is used to predict changes in a species' abundance over time following a fire where the response can be described as one of three hypothetical response curves**. The science behind the approach considers that by using KFRS (at either end of the "scale" of responses), a

responses), a range of species and their habitat requirements will be integrated.

9.4 Slashing for asset protection

Slashing between the western access track and private property and on the eastern side of the track (up to Narani Way stormwater ponds) is recommended. A width of about 2-3 metres is recommended. Woody weed removal along either side the track to improve the establishment of the break should be undertaken. A slashed management access track around the boundary to facilitate access to the eastern section of the reserve should be maintained (see attachment 1). This also acts as an effective break as the width is enhanced by the creek. Slashing across or within other areas of the reserve is not supported or recommended.

9.5 Vegetation modification by manual removal of targeted species

Targeted removal of individual plants or species has been shown to benefit both fire management and biodiversity. Woody weed removal (generally shrubs and small trees) decreases the contribution to fuel loads and enhances the biodiversity values of an area. Council therefore supports targeted removal of woody weeds in reserves. In Painkalac Creek Reserve, a substantial amount of woody weed removal has occurred on the eastern section within the Grassy Woodland.

9.6 Arson

See general comments on risk.

10 Fire operations/Work program

Council's current approaches to fire management within the reserve are depicted in Attachment 1 and are detailed below:

- Council continue working towards physical removal of Boneseed, Coast Wattle and other invasive woody weeds from the reserve. This activity will have concomitant fuel hazard reduction and environmental benefits.
- The management access track around the perimeter of the reserve be maintained (slashed).

11 Liability

Section 43 of the Country Fire Authority Act (1958) states that:

43 Duties and powers of councils and public authorities in relation to fire:

(1) In the country area of Victoria it is the duty of every municipal council and public authority to take all practicable steps (including burning) to prevent the occurrence of fires on, and minimise the danger of the spread of fires on and from:

a) any land vested in it or under its control or management; and

b) any road under its care and management.

(2) A municipal council or public authority may:

a) acquire any equipment;

b) do any thing;

c) expend from its funds any amount that is necessary or expedient for the purpose of fulfilling its duty under subsection (1).

(3) If the cost of maintenance of a road is apportioned between municipal councils or public authorities or both the cost of fulfilling the duty imposed by subsection (1) must be apportioned in the same manner.

12 References

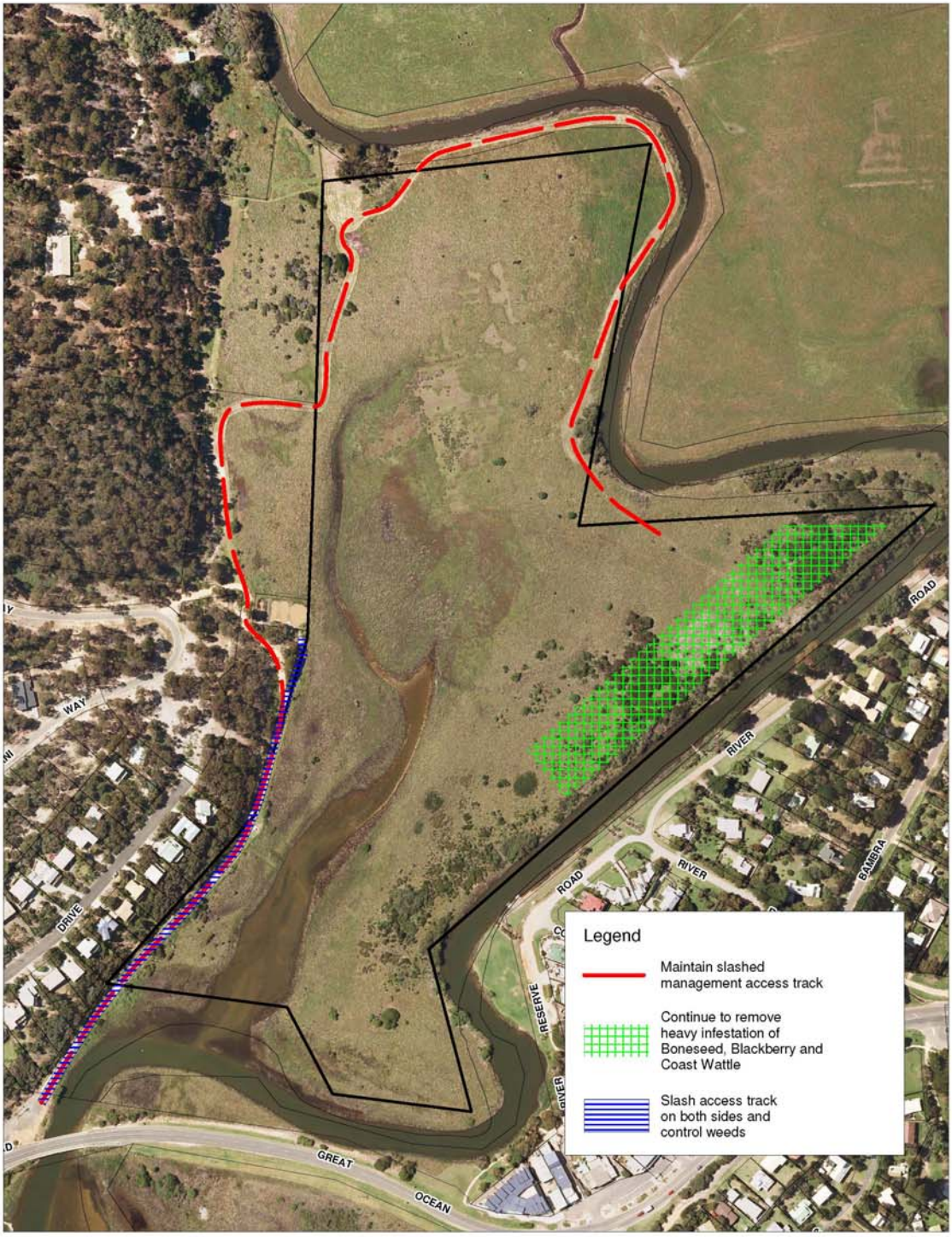
Arthur Rylah Institute (2007) "*Surf Coast Shire BioMapping: Flora and Fauna of Nine Priority Reserves*". Surf Coast Shire Council Report.

Department of Sustainability and Environment (2006) "*Code of Practice for Fire Management on Public Land*". Revision 1, DSE.

McCarthy, G.J., Tolhurst, K.G. & Chatto, K . (1998) *Overall fuel hazard guide*. Natural Resources and Environment & Centre for Forest Tree Technology. Research Rep. 47.

Sinclair and White (2005) ""*Mapping Native Vegetation in the Painkalac Creek Estuary, Aireys Inlet*", a report to the Surf Coast Shire, Arthur Rylah Institute.

Attachment 1: Map of Painkalac Creek Reserve



Attachment 2: EVCs mapped at Painkalac Creek Reserve