Direl (Lake Tyrrell)

Cultural Landscape Conservation Management Plan

'Direl' (VAHR 7427-0187)

PUBLIC REPORT



REPORT TO BULOKE SHIRE COUNCIL

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The authors wish to acknowledge that the content of this report, and the land to which it relates, is located on Country with shared connection to various Traditional Owner groups including Barengi Gadjin Land Council Aboriginal Corporation — representing the Wotjobaluk Peoples — Wemba Wemba, Tati Tati, Wadi Wadi, Latji Latji, Weki Weki and the First People of the Millewa Mallee Aboriginal Corporation. As acknowledged Traditional Owners and Custodians of Direl (Lake Tyrrell), we would like to pay our respects to their culture and their Elders, past, present, and future.

Cover image: View across Direl (Lake Tyrrell) from the western shore at Aboriginal place 'LAKE TYRRELL 18' (VAHR 7427-0103), facing northeast. Photo: P. Kucera (22/04/2021).





EXECUTIVE SUMMARY

Buloke Shire Council (BSC) engaged Dr Vincent Clark & Associates to produce a **Conservation Management Plan (CMP)** for the registered Aboriginal place of **Direl (VAHR 7427-0187)**, which includes the body of Lake Tyrell and surrounding areas of land. The **aims** of the CMP are to:

- gather and compile information about the cultural significance and values of Direl to the relevant Traditional Owner groups
- understand and assess the current activities and threats to cultural heritage and the preservation of the place, and
- provide recommendations for the ongoing management of Direl.

This public report summarises the results of the CMP and specific details about the nature and location of Aboriginal cultural heritage have been removed.

Direl (VAHR 7427-0187) is a rich, but increasingly threatened **cultural landscape**. When the CMP was commissioned, Direl comprised 116 individually registered Aboriginal places (Victorian Aboriginal Heritage Register), including numerous scatters of stone artefacts (some with 'hearths' or fireplaces) from past occupation sites, isolated hearths and mound features, and a scarred (culturally modified) tree. There is a range of potential impacts, including: the Mallee Rally; the recent tourism boom; invasive species such as rabbits; erosion caused by clearing, cropping, and grazing; and loss of landform along vehicle tracks.

The CMP was undertaken in close consultation with **First Peoples – State Relations (FP-SR)** (formerly Aboriginal Victoria [AV)]) and the **Traditional Owner Reference Group (TORG)**, made up of representatives from: Barengi Gadjin Land Council Aboriginal Corporation (BGLCAC; the Registered Aboriginal Party [RAP] for part of the study area), First People of the Millewa Mallee Aboriginal Corporation (FPMMAC), and Latji Latji, Tati Tati, Wadi Wadi, Weki Weki and Wemba Wemba groups. The TORG helped guide and conduct the Direl CMP project. Other **stakeholder and community groups** were also consulted, including local landowners, tourism operators and interest groups (e.g. the Sea Lake Off-Road Club).

To provide a **background** to Direl the CMP summarises information about: the natural environment; Aboriginal history, cultural heritage and archaeology; non-Indigneous land-use history; and current land uses.

A **field survey** of Direl (VAHR 7427-0187) was undertaken over eleven days in February 2020 and April 2021. **Eight areas** surrounding the lake were targeted, each representing different landforms and land uses. The aim was to locate and document both previously recorded places as well as any unrecorded **Aboriginal cultural heritage** visible on the ground surface, and to assess the threats and impacts to it.

The survey resulted in recording 26 new place components—mostly scatters of flaked stone artefacts (and some possible flaked glass), as well as hearths and non-lithic cultural material (e.g. clay balls) and ten previously registered VAHR places were inspected and additional records taken.

Direl has been divided into **six Management Zones (MZ1 – MZ6)**, with specific management recommendations for the cultural heritage and threats in each zone. Among the '**critical threats'** and '**areas of high concern**' at Direl are: damage caused by unregulated tourist access; the annual Mallee Rally event and other vehicle use around the lake; wind and water erosion resulting from devegetation and causing further vegetation loss; public recreational use; and rubbish dumping. An **action plan** was developed to address the **threats to Aboriginal cultural heritage** in each Management Zone. Actions



and strategies—such as vehicle track rehabilitation, revegetation, combating erosion, pest control, and regular heritage surveys—are aimed at mitigating the identified threats. Recommendations for further investigations at Direl are also presented.



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ABBREVIATIONS

The following abbreviations may appear throughout this report:

AAA -	Australian Archaeological Association
ACHRIS -	Aboriginal Cultural Heritage Register and Information System
AHD -	Australian Height Datum
ARU -	Ancestral Remains Unit
ASL -	Above sea level
AAV -	Aboriginal Affairs Victoria (superseded by AV: now First Peoples – State Relations)
AV -	Aboriginal Victoria (formerly AAV, now First Peoples – State Relations)
BP -	Before Present
BSC -	Bloke Shire Council
BGLCAC -	Barengi Gadiin Land Council Aboriginal Corporation
CHMP -	Cultural Heritage Management Plan
CMA -	Catchment Management Authority
CMP -	Cultural Landscape Conservation Management Plan
DELWP -	Department of Environment, Land, Water and Planning
DEM -	Digital Elevation Model
DGPS -	Differential GPS
DVC&A -	Dr Vincent Clark & Associates
ESO -	Environmental Significance Overlay
EVC -	Ecological Vegetation Class
FO -	Floodway Overlay
FPMMAC -	First People of the Millewa Mallee Aborignal Corporation
FP-SR -	First Peoples – State Relations (formerly AV)
FZ -	Farming Zone
GSV -	Ground surface visibility
HO -	Heritage Overlay
HV -	Heritage Victoria
LDAD -	Low Density Artefact Distribution
LCC -	Land Conservation Council
LGA -	Local Government Authority
LGM -	Last Glacial Maximum
Lidar -	Light Detection and Ranging
NOI -	Notice of Intent
NSW -	New South Wales
OSL -	Optically-Stimulated Luminescence
PCRZ -	Public Conservation and Resource Zone
PGC -	Primary Grid Coordinates
PIF -	Place Inspection Form
PROV -	Public Records Office of Victoria
RAP -	Registered Aboriginal Party
SLV -	State Library of Victoria
SRTM -	Shuttle Radar Topographic Mission
TO -	Traditional Owner
UAV -	Unmanned Aerial Vehicle
VAHR -	Victorian Aboriginal Heritage Register
VAS -	Victorian Archaeological Survey
VRO -	Victorian Resources Online



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NAMES USED IN THIS REPORT

The name *Direl* is used throughout this report to refer to the total area covered by the Aboriginal heritage place 'Direl' (VAHR 7427-0187), registered on the Victorian Aboriginal Heritage Register (VAHR) (and maintained by the Department of Premier and Cabinet). 'Direl' includes the body of Lake Tyrrell as well as the immediate surrounding area. Direl is a more accurate translation of the original Wergaia language name (L. Hercus in Clark 1990: 354). *Lake Tyrrell* is used to refer to the lake body itself.

1 UNDERSTANDING THE PLACE

1.1 BACKGROUND

This document is a summarised public report of the **Cultural Landscape Conservation Management Plan** (CMP) for Direl (Lake Tyrrell) and specific details about the nature and location of Aboriginal cultural heritage have been removed.

The **aims** of the CMP are to:

- fill knowledge gaps relating to the **Aboriginal cultural heritage landscape** of Direl
- understand the current activities undertaken at Direl
- identify threats to this landscape
- recommend conservation management measures to protect Aboriginal cultural heritage at Direl into the future.

Lake Tyrrell is the largest inland salt lake in Victoria.

Usually dry, this low-lying lake covers an area of around 200 km², with a circumference of approximately 68 km. It is around 11 km at its widest point in the south, narrowing to 4 km across further north, and has several small islands (Lloyd 1997: 6; McLennan 1994: 5; Teller et al. 1982: 161).

Direl holds a high level of **significance to Traditional Owner groups** in the region. It has social and spiritual significance as a cultural landscape, and is associated with an astronomical Dreaming (see Section 3). The name 'Direl' comes from the Boorong clan word for 'sky', which is reflected in the lake when it is filled with water.

Direl also has statewide **archaeological significance**. There are numerous Aboriginal cultural heritage places recorded at Direl, including evidence of Aboriginal occupation stretching back to the Pleistocene.

Direl also has long-standing importance to the **local and broader community**. It is the location of annual and biennial events, and more recently its unique landscape has made it a popular **tourist destination**. The largest event associated with the lake is the Mallee Rally, an off-road vehicle race, which has been held since 1972.

Land adjoining the shoreline is also host to **agricultural and commercial activities**, including wheat production, livestock, and salt-extraction.

1.2 SCOPE

The scope of the CMP includes:

- **consultation with the Traditional Owners**, including Barengi Gadjin Land Council Aboriginal Corporation (BGLCAC), First Peoples of the Millewa Mallee Aboriginal Corporation (FPMMAC), Wadi Wadi, Wemba Wemba, Tati Tati, Latji Latji, and Weki Weki peoples.
- consultation with community groups and other stakeholders, including local landowners, community business and hobby groups (e.g. Sea Lake Off-Road Club [SLORC] and tourism operators).
- a summary of the **contextual history** of Direl.





- the **survey** of previously registered Aboriginal places within Direl (VAHR 7427-0187), with the intent to identify any unrecorded Aboriginal cultural heritage material.
- a **cultural heritage significance assessment**, including preparation of a statement of cultural significance (Section 3).
- the development of a **conservation policy** informed by the statement of cultural significance.
- a **project outcome** that includes the identification and linking of cultural heritage significance, conservation policies, and practical actions/strategies (Section 5), and
- a **conservation management plan** for Direl, which includes a step-by-step action plan for implementing conservation policies and the development of a cyclical/ongoing works calendar (Section 6).

1.3 LIMITATIONS

The CMP is intended as a **preliminary report.** Its primary focus is on the current impacts on Aboriginal cultural heritage at Direl. The scope of the CMP was limited by a number of factors, including:

- field survey of the entirety of Direl was not possible
- disruptions caused by the COVID-19 pandemic (2020–2021)
- delays to research permits
- restricted access to some leased areas (Cheetham Salt), and
- excessive heat during field survey.

1.4 STUDY AREA

The 'study area' of this report corresponds to the extent of the registered Aboriginal cultural heritage place 'Direl' (VAHR 7427-0187), covering approximately 285 km² (Map 1). Direl is a **cultural landscape** made up of:

- the body of Lake Tyrrell
- portions of adjoining land to the east, northeast and southeast of the lake, including lunette dunes
- vegetated areas, agricultural land and roads.

Direl is located around 320 km northwest of Melbourne, 60 km west of Swan Hill and 6 km north of Sea Lake.

Lake Tyrrell is nearly 24 km long and ranges between around 6–12 km wide.

Tyrrell Creek is the only major—albeit intermittent—waterway associated with the lake, flowing into the lake at its southern end. However, other unnamed ephemeral waterways and natural drainage channels also occur across the landscape.

Most of Direl is classed as a Public Conservation and Resource Zone (PCRZ) within the Buloke Shire Council (BSC) Planning Scheme. Some areas, mostly on the eastern side of the lake, are listed as Farming Zone (FZ). The land immediately adjoining the shoreline of Lake Tyrrell is managed by several stakeholders (Section 4), and includes freehold and leasehold allotments.





Map 1: Direl (VAHR 7427-0187) location and extent.





1.5 METHOD

The CMP involved:

- office-based ('desktop') research—into the historical, archaeological and environmental background
- field survey on foot (February 2020 and April 2021), and
- close consultation and collaboration with stakeholders.

The CMP was carried out in accordance with the principles outlined in the Australia ICOMOS Burra Charter (2013), Practice Note: Preparing Studies and Reports: Contractual and Ethical Issues (2013) and Ask First – A Guide to respecting Indigenous heritage places and values (2002).

1.6 CONSULTATION

Consultation with all stakeholders at Direl formed a crucial part of the CMP.

There was close consultation between **Dr Vincent Clark & Associates** (DVC&A) and **First Peoples** – **State Relations** (FP-SR) (formerly Aboriginal Victoria [AV]) and a number of **Traditional Owner** groups. FP-SR assisted in establishing and facilitating a **Traditional Owner Reference Group** (TORG).

The TORG was made up of representatives from: Barengi Gadjin Land Council Aboriginal Corporation (BGLCAC) (the Registered Aboriginal Party [RAP] for part of the study area); First People of the Millewa Mallee Aboriginal Corporation (FPMMAC); and the Latji Latji, Tati Tati, Wadi Wadi, Weki Weki and Wemba Wemba groups.

The purpose of the reference group was to give Traditional Owners a mechanism to guide the Direl CMP project, ensure cultural values were properly addressed, to participate in fieldwork, and to ensure the right people were involved.

Other stakeholders and community groups were also consulted, including: local landowners/managers (incl. Cheetham Salt), interest groups (e.g. Sea Lake Off-Road Club [SLORC], Advance Sea Lake Inc.), and tourism operators (Sea Lake Tourism Group).

1.7 ENVIRONMENTAL CONTEXT

It is important to understand Direl (VAHR 7427-0187), in its broader environmental context.

Key points:

- Lake Tyrrell is both the largest and the oldest of the Mallee salt lakes
- the lunette dunes on the lake's northern side have formed over many thousands of years
- while mostly dry today, Tyrrell was once part of vast ancient lakes with remarkably higher water levels
- plants communities are salt and drought tolerant, and were more expansive in the deep past when the lake was full
- the environment we know today at Direl developed around 800 years ago





1.7.1 Land

The landforms of Direl were formed over millennia by a combination of fluvial (rivers and other waterways), aeolian (wind) and lacustrine (lake) processes (Teller et al. 1982: 161).

The main landforms are the **lakebed**—underlain by gypsum-rich clay and salt crusts—where strongly saline groundwater is discharged, and the wind-sculpted, crescent-shaped, clay **lunette dunes** that flank its eastern side. There are also smaller areas of swamp and lake deposits formed of mud, silt, clay and peat. Ancient, wind-blown **dunes** extend west and north of the lake, marked by low, linear sand ridges, which form the steep and gentle hillslopes descending to the western shoreline. The lakebed contains a number of **low islands**, and low **peninsulas** of land extend out past the shoreline (Teller et al. 1982: 161-2; Luly 1993; Welch et al. 2011; VRO 2020).

At Box Gully, on the north side of the lake, erosion revealed ancient beach deposits from an era when the water level was significantly higher (Macumber 1991: 54, 1992: 3) (Figure 1).

Overlying these 'palaeobeach' sediments are two lunette dune deposits: an upper 'grey' lunette which probably developed after around 28,000 years ago during a dry phase; and a lower 'red earth' lunette, which developed before the height of the last Ice Age (or Last Glacial Maximum – LGM) between around 76,000–28,900 years ago (cal BP) (Macumber 1991: 54–56, 58; Richards et al. 2007: 2).



Figure 1: Location of Box Gully showing lunette dunes and the former extent of Lake Chillingollah (Source: Stone 2006: Figure 1).





1.7.2 Waters

Lake Tyrrell is the largest inland salt lake in Victoria (Teller et al. 1982: 161). Mostly dry or 'ephemeral', the lake is mainly fed by groundwater, rainfall and local run-off, although occasionally Tyrrell Creek brings floodwaters from the Avoca River (Teller et al. 1982; Macumber 1992: 6; Lloyd 1997: 8; Mallee CMA 2014: 14). When the lake contains water it fills to a maximum depth of 0.7 m (Macumber 1991: 54).

Lake Tyrrell was once part of huge, ancient freshwater lakes. The largest, Lake Bungunnia, formed around 3.5 million years ago and receded before 780,000 years ago (BP). And around 131,000 to 77,000 years ago, during a period when lake levels were high, Lake Tyrell formed part of another giant lake, known as Lake Chillingollah (Figure 1). Much less saline than Lake Tyrrell is today, Lake Chillingollah also included Lake Wahpool and Lake Timboram to the east, and had a water level of nearly 14 m above the modern-day lake floor (Teller et al. 1982; Macumber 1991: 54; 1992: 3; Luly 1993; Bowler et al. 2006: 161; Stone 2006: 177) (Figure 1). Another 'lake full' phase occurred between around 50,000 and 30,000 years ago (Macumber 1991: 58).

1.7.3 Plants

Direl is located within the Murray Mallee 'bioregion' and contains several distinctive plant communities (known as 'Ecological Vegetation Classes' – EVCs) that have adapted to its particular environment—in particular, they are tolerant of salt, drought and occasional water-logging.

These plant communities include 'Semi-arid Chenopod Woodland' (EVC 98) around the north of the lake, scattered 'Low Chenopod Shrubland' (EVC 102), 'Semi-arid Woodland' (EVC 97) and 'Woorinen Mallee' (EVC 824) in the south, and 'Saline Lake Aggregate' (EVC 717) at the mouth of Tyrrell Creek (NatureKit 2020).

These communities are made up of:

- moderately tall, sparse, open woodland trees—e.g. *Casuarina pauper* (belah), *Allocasuarina luehmannii* (buloke), *Callitris gracilis* (slender cypress-pine), *Myoporum platycarpum* (sugarwood) and Mallee eucalypts (EVC 824 only; e.g. oil, red, grey, and blue-leaved mallee)
- a range of hardy, small to medium shrubs—e.g. species of Acacia (umbrella wattle, myall) and Hakea (needlewood), Chenopodium (e.g. cottony goosefoot), Maireana (bluebush), Atriplex (salt bush), Rhagodia (hedge saltbush), Nitraria billardierei (nitre-bush), Santalum acuminatum (Sweet Quandong), Sclerolaena (bassia, copperburr).
- grasses, sedges, and herbs—e.g. species of *Austrostipa* (spear-grass), *Austrodanthonia* (wallaby grass), *Einadia* (nodding salt bush), and *Zygophyllum* and *Brachyscome* (daisy).

Varieties of succulent, salt-tolerant samphire shrubs include *Pachycornia*, *Arthrocnemum* and *Sarcocornia* (Luly 1993: 589; DELWP 2021a).

Over the last 10,000 years the vegetation cover at Lake Tyrell has expanded and contracted with climate fluctuations and periods of higher or lower rainfall, which eventually saw the drying of the lake (see Luly 1993). The arid, Mallee vegetation we know today developed from around 800 years ago, with the lake becoming ephemeral (Luly 1993: 595).

Before 1750, the same plant communities were more widely spread at Direl. Due to the extensive clearing of native vegetation to make way for agriculture, as well as the construction of roads and other infrastructure, remnant vegetation now makes up a much smaller proportion of the area (NatureKit 2020).

1.8 ABORIGINAL HISTORY

Key points:

- the *Boorong* people were most closely tied with Direl
- many local place names originate from the *Wergaia* language
- Historical accounts from the mid-late 1800s attest that *Boorong* managed water scarcity in the arid Mallee environment by digging wells, extracting water from the roots of certain eucalypts, and seasonal use of the area
- W. E. Stanbridge recorded the *Boorong*'s extensive knowledge of astronomy, as well as some oral traditions and Dreamtime stories

We can glean information about Aboriginal people's way of life at Direl in the past from a variety of historical sources—the diaries of non-Indigenous surveyors and early settlers, historical records and maps, published books including memoirs, amateur ethnographers, as well as academic research by historians, anthropologists, and linguists.

The following summarises some of this information. It is important to remember that there are inherent biases in some of this material, largely determined by the prevailing social and cultural ideas of the time.

1.8.1 Aboriginal people of Direl

The *Boorong* clan is most closely associated with Direl. *Boorong* people were speakers of the *Wergaia* language, which they shared with at least 20 other clans, in particular the Wemba Wemba, Barapa Barapa, Jadawadjali, Djab Wurrung, Ladji Ladji, and Wadi Wadi (Clark 1990: 35, 338). The *Wergaia* were also known as the *Maligundidj*, meaning *'the people of the Mallee scrubs'* (Clark 1990: 336, 1995: 177). *Wergaia* Nation lands stretched from present-day Morea to Murrayville, Manangatan and Charlton, and took in the Little and Big Deserts, lakes Tyrrell, Hindmarsh, Albacutya and Agnes, the Wimmera and Avoca rivers, and Tyrrell Creek (Clark 1990: 353).

1.8.2 Aboriginal place names at Direl and the local region

Many of the **place names** within Direl and the surrounding region originate from **Aboriginal languages** (e.g. *Daterah* [now Daytrap], *Noohywrrie, Koro Korornoit, Geramen, Bimbogrie*; Figure 2).

Lake Tyrrell itself has been recorded as *Taril* (Smyth [1878] in Clark 1990: 354) and *Direl*, meaning '**sky**' (Hercus 1986: 202). According to the BGLCAC, the preferred spelling of Lake Tyrrell in the *Wergaia* language is *Direl*.

Chinkapook is of Wadi Wadi origin, meaning 'red water' (VicNames 2020) or perhaps more accurately 'red clay pool', referring to the red pigment used to decorate weapons and as body paint (The Herald 1914: 3).

The names of some pastoral properties near Lake Tyrrell have anglicise names of Aboriginal-language origin, for example, *Urrewerree* became 'Eureka' and *Jerurmim* became 'Gerahmin' (Lloyd 1997: 16).





Figure 2: Detail of Pearson & Co's 'new map of Victoria' (1865) showing Lake Tyrrell and an Aboriginal well on the western shore (Source: Pearson & Co. 1865).

1.8.3 Early historical accounts

Several early accounts from surveyors, travellers and early pastoralists in the **mid-to late 1800s** give us information about the way of life of the *Boorong* people, and the skills they employed to live in the challenging, arid mallee environment.

Boorong managed water scarcity by digging wells on soaks and claypans, and by extracting water from the roots of certain eucalypts.

Aboriginal wells were described by the surveyors E. R. White, Pritchard and Dr George Neumayer:

[they] *yield sufficient water for two or three teams of bullocks* (East 1967; McLennan 1994: 10)

... on the west side of Lake Tyrrell a native well ... was simply a clay-pan or crabhole containing water in winter after rain. Native wells ... are of two classes, clay-pans and soaks ... the blackfellow sinks a conical hole, rarely more than 3 feet deep, and covers it with sticks to protect the water from the kangaroo and wild dogs (White in Kenyon 1914: 63)

... we reached the top of the lake [probably Daytrap], and proceeding a little further on, arrived at a small flat with crab-holes containing beautiful water (Neumayer in Kenyon 1914: 65)

Pearson & Co's 'new map of Victoria' from 1865 possibly marks the same well on the western shoreline of the lake mentioned above (see Figure 2).

The **extraction of water** from the roots of eucalypts and the **seasonal** use of the country was witnessed by Swiss traveller H. De Castella and the pastoralist W. E. Stanbridge (Stanbridge 1861; Lloyd 1997: 10):





The neighbourhood of the Salt Lake, Tyrril ... is so devoid of surface permanent water, that it is inhabited by the natives only in winter, except when they have recourse to the water in the roots of the Mallee (Stanbridge 1861).

Barney [an Aboriginal guide], who had found a tree which the natives call the weea, began to pull its roots up; he cut them into pieces two feet long and leant them against a tree with the bottom ends in a tin cup. A quarter of an hour later the cup was full of fresh, perfectly clear fresh water free of any unpleasant taste we drank it with real pleasure as we were beginning to feel the great heat. The weea is one of the many varieties of the eucalypt; it looks so much like the mallee that it can be recognised only by an experienced bushman (Lloyd 1997: 10).

The reflections of W. E. Stanbridge, who held the license for 'Tyrrell Downs' from 1847–1873, give us rich insights into the **atronomical knowledge**, oral traditions and **Dreamtime stories** of the *Boorong* (Stanbridge 1857, 1861). The astronomy of the Boorong was the first time Indigenous knowledge of the sky had been documented by Europeans.

... the Boorong tribe ... take pride in saying that they know more of astronomy than any others ... Pupperimbul ... was one of the race who then inhabited the earth, and who are now called Nurrumbunguttias, or old spirits. They possessed fire ... but were translated in various forms to the heavens before the present race came into existence. All the celestial bodies ... are supposed to have been made by them. They exercise all spiritual influences, whether for good or evil upon the earth, where they are represented in a material form, amongst other creatures, by the Pupperimbul (Estrelda Temporalis)[the Red-browed Finch, now Neochmia temporalis], to kill one of which would be avenged by a deluge of rain (Stanbridge 1861: 303).

The sun (*Gnowee*) was created from:

... An emu's egg prepared and cast into (tyrille) space by Pupperimbul, before which the earth was in darkness. It is said by another tribe that the emu's egg was prepared by Berm-berm-gle, and carried into space by Penmen, a small bird which they do not destroy (Stanbridge 1861: 301).

Warring (The Milky Way) is made of smoke from the campfires of the *Nurrumbunguttia* and two *Mindii,* which were enormous snakes that made the Murray River (*Millee*) (Stanbridge 1861: 139).

Researchers have since found links between the *Boorong's* astronomical knowledge and the visibility of certain constellations (recorded by Stanbridge), and the on-the-ground seasonal patterns of particular Mallee animals (e.g. spawning and egg-laying; Morieson 1966, 2002, 2003; Hamacher 2011).

A bark painting that Stanbridge acquired from an Aboriginal man near Lake Tyrrell depicts scenes from the **post-contact period**, showing a squatter's house, emus and kangaroos, a crater lake, a gathering of people holding spears and boomerangs, as well as hunting and fishing practices (Figure 3; Smyth 1878: 286-7).





Figure 3: Aboriginal bark painting once owned by W. E. Stanbridge (Source: Smyth 1878: Figure 40).

1.9 NON-INDIGENOUS LAND USE HISTORY OF DIREL

Key points:

- by the mid 1800s Lake Tyrell had been surveyed and extensive pastoral runs stocked with sheep had been established
- widespread clearing had occurred by the late 1800s, with wheat cultivation dominant in the Mallee by 1900, and erosion becoming a major issue by the 1930s
- Commercial salt mining began in the late 1800s and continues to this day
- the lake has been a focus for recreation since at least the 1920s

1.9.1 Exploration of Lake Tyrrell and surrounds

Exploration of the Mallee by Europeans was minimal in the early years of contact between Aboriginal and non-Indigenous peoples. In the 1830s, explorers such as Charles Sturt, Major Thomas Mitchell, and E. J. Eyre passed close to Lake Tyrrell but did not reach the lake itself (Mitchell 1839; McLennan 1994: 8, 10).

E. R. White undertook a detailed **survey** of the Mallee region between 1849 and 1851 (ACW&A 1986; McLennan 1994: 10). In 1851, Assistant Surveyor Pritchard travelled to Lake Tyrrell and surveyed its circumference, by which time W.E. Stanbridge had taken up the Tyrrell run (Kenyon 1914: 63).





Later, in 1860, the surveyor G. Neumayer passed through Lake Tyrrell and observed Stanbridge's huts. Neumayer described the southern shoreline of Lake Tyrrell as having no fresh water and being 'quite dry ... covered with a thick crust of salt, presenting the exact appearance of a large snow field, with fine green hills in its vicinity' (in Kenyon 1914: 65).

1.9.2 Agriculture

Squatters formed the early non-Indigenous population of Lake Tyrrell and surrounds, taking up **large runs** in the area—such as 'South Tyrrell', 'Gerahmin', 'Eureka', and 'Astley's' (later renamed 'Tyrrell Downs')—for sheep and later wheat farming. The earliest pastoralists were William Edward Stanbridge and Robert Ross Haverfield.

In 1848, Stanbridge described his run ('Astley's') as comprising 'undulating plains and mallee scrub [including eucalypts] without any water upon it ... between the salt marsh 'Tyrill' and the salt marsh 'Urum-Tyrill'...' (in Lloyd 1997: 13). Stanbridge farmed **sheep**, with his flock growing from 2,000 in 1850 to 8,400 by 1861 (Lloyd 1997: 22). The 64,000-acre run was later taken over by Charles Brown Fisher (in 1873), Winfield Attenborough (1880) and Joseph Mack (1882) (Spreadborough and Anderson 1983: 202).

Haverfield and his business partner Joseph Jardine, took on 'Eureka', 'Gerahmin' and 'Tyrrell South' stations in 1848, bringing 3,000 sheep with them (Lloyd 1997: 16).

Sea Lake township was later established in the 1890s (McLennan 1994: 10; Carty 2017: 20). At this time, 'Tyrrell Downs', on the eastern side of the lake, was the largest farming enterprise in the region, at 72,000 acres. The western side of the lake was used for grazing stock.

As a result, large swathes of trees and shrubs were **cleared** (Figure 4 and Figure 5), in particular following the passing of the *Mallee Lands Act* in 1896 (Lloyd 1997: 26). On 'Tyrrell Downs' alone, 13,000 acres were cleared for ploughing within a year, with 100 men and thirty rollers (Lloyd 1997: 25–26). By 1900, wheat cropping was the main agricultural pursuit in the Mallee (Newell 1961: 2) (Figure 6).

The absence of reliable **fresh water** was an ongoing problem for early farmers in the region (McLennan 1994: 89; Lloyd 1997). When water was available in Lake Tyrrell and Tyrrell Creek it was too saline to be used for drinking or irrigation. Eventually, catchment dams were created to store rainwater, which made agricultural pursuits in the area more viable (Lloyd 1997: 21).



Figure 4: Land clearing on 'Tyrrell Downs' Station (Source: Lloyd 1997: 26).



Figure 5: Cleared shoreline of Lake Tyrrell c. 1920, with a vehicle track in the foreground (Source: Museums Victoria 2020: Item MM 2114).





Agricultural practices in the late 19th and early 20th centuries caused a significant increase in **erosion** and topsoil blowouts in the Mallee, exacerbated by *'bare fallowing and stubble-burning, assisted by the activities of rabbits'* (Newell 1961: 2). By the 1930s, erosion in the Mallee was significant (Figure 7), but had improved somewhat by the 1960s (Newell 1961: 2). During the 20th century, the major issues confronting agriculture in the Mallee included *'soil salinity, weed infestations, pest animal control, particularly rabbits, native vegetation die back and loss of native fauna'* (MCMA 2017: 6). A major drought in 1983 caused devastation to crops and a significant wind erosion event, which saw Mallee dust carried as far away as Melbourne (MCMA 2017: 6). As a result, efforts to tackle erosion were implemented (MCMA 2017: 6).

Wheat cropping and sheep grazing remain key agricultural pursuits at Lake Tyrrell and surrounds. The Wimmera Mallee region is an important dryland grain-growing area, producing around seventy per cent of Victoria's grain (Agriculture Victoria 2019). Some present-day residents and farmers have ancestry and connections to Lake Tyrrell that stretch back several generations to the earliest non-Indigenous settlers.



Figure 6: Wheat harvesting in the Sea Lake/Nandaly region. Photograph by William (Bill) Boyd, Dec. 1920 (Source: Museums Victoria 2020: Item MM 39610).



Figure 7: Gully erosion at Lake Tyrrell in 1937 (Source: Museums Victoria 2020: Item MM 2319).

1.9.3 Salt mining

The potential for marketable **salt mining** at Lake Tyrrell was first recognised in 1866 by Surveyor-General, Mr Chas Ligar and the geological surveyor, Alfred Selwyn (Ligar and Selwyn 1866; Long and Edmonds 1999: 38). Despite this, salt harvesting (for local towns) did not begin at Lake Tyrrell until nearly a decade later (Lloyd 1997: 413).

in 1896, Mr Henry Berry established the first **commercial operation** despite opposition from the residents of Sea Lake (Lloyd 1997: 413).

The high-quality salt, crystallising on the lake surface, was transported to the railway in Sea Lake via horse drawn 'salt carts' into the first half of 20th century (Figure 8). Salt grading machines were used to separate the harvested salt—of some 25 to 80 tons per day—into grain size for eventual sale to tanneries, butchers, farmers and for other uses (Figure 9) (Lloyd 1997: 413-414, 416).

The by now widely recognised spectacle of the salt lake at Direl was described by the *Mt Wycheproof Ensign* (January 1, 1897):

...the picture is a brilliant one. The shimmer of the perfectly level surface blends in a mid distance with the dark green shades of the blue and saltbush or the brighter green





of the eucalyptus and above rises the steely grey tints of a midday sky, which brightens in turn into the deeper ethereal blue as the eye travels overhead. Above all hangs the blazing sun pouring its fervid heat over the picture till the heat waves rise and quiver and the intense silence of the scene makes itself oppressively felt (in Lloyd 1997: 413).

Berry held the lease until 1900, after which leases were granted to various others over the next halfcentury (Lloyd 1997: 413–419). The lease was eventually sold to **Cheetham Salt Ltd** in 1963. In the 1980s, the production emphasis shifted to 'Site 3' near Daytrap corner, where dam walls were constructed between the lake's natural islands to more efficiently produce salt (Lloyd 1997: 413–419). Cheetham Salt continues the harvesting of salt at Lake Tyrrell today for a variety of end uses including food, hide tanning, pharmaceutical, stock feed, pool treatment, chemical and industrial with salt stacks still present in the area (Figure 10).



Figure 8: Carting salt on horse drawn railway c. 1930. Allan McClelland collection (Source: Lloyd 1997: 416).



Figure 9: Hart-Parr tractor driven grading machine, c. 1935. Allan McClelland collection (Source: Lloyd 1997: 416)



Figure 10: Modern-day salt stacks at Lake Tyrrell (Source: ABC Rural, Danielle Grindlay 2016).

1.9.4 Recreation

Direl has been used by the local and broader community for **various recreational purposes** since at least the 1920s, including sightseeing, swimming (Figure 11, Figure 12), walking, bird-watching, photography, as a track for the Mallee Rally, and tourism (see also Section 4).





The first Mallee Rally was run in 1972 and was organised by the Bendigo branch of the Light Car Club (McLennan 1994: 263), and in 1974 there were 214 entries. Normally taking place on the Queen's Birthday long weekend in June, the rally has run each year since 1987, with the exclusion of 2019-2021 due to issues regarding permit approval and public health directives relating to the COVID-19 pandemic.



Figure 11: Women undertaking a 'wheelbarrow' race on Lake Tyrrell in 1930 (Source: Museums Victoria 2020: Item MM 2449).



Figure 12: Recreational use of Lake Tyrrell (c. 1920) (Source: Museums Victoria 2020: Item MM 2113).

1.10 ABORIGINAL ARCHAEOLOGICAL INVESTIGATIONS AT DIREL

Key points:

- information about the Aboriginal archaeology of Direl has come from a variety of sources field surveys, excavation and academic research
- the Aboriginal archaeological record of Direl is very rich—with numerous artefact scatters, hearths and other features
- 116 'Aboriginal Places' (plus other components) have been recorded within the area now registered as 'Direl' (VAHR 7427-0187)
- large numbers of scarred or 'culturally modified' trees occur outside of Direl along Tyrell Creek
- Direl may have been a traditional stopping point on Aboriginal travel routes
- Flaked stone artefacts and tools are made of silcrete, quartz and quartzite (the latter imported from a distant source)
- Significant evidence from 'Box Gully' (VAHR 7427-0101) shows that Aboriginal people repeatedly camped at Direl between 32,000 and 26,600 years ago

1.10.1 Types of investigations

Archaeological investigations at Direl have consisted mainly of:

- **field surveys** led or commissioned by public bodies (e.g. Victorian Archaeological Survey and AV [Victorian Government]) to locate and record Aboriginal places (from the 1970s)
- privately commissioned **cultural heritage management projects** to assess the impact of planned developments (e.g. salt extraction), in particular following the introduction of the *Aboriginal Heritage Act 2006* (Vic) (1980s–present) (e.g. Long and Edmonds 1999; Edmonds 2004), and





• a moderate amount of **academic research**, including systematic survey and some excavation (beginning in the late 1800s) (e.g. Kenyon and Mahony 1914; Massola 1969).

These investigations have revealed a rich archaeological record and provided valuable insights into the nature and duration of Aboriginal occupation at Direl. These investigations—in terms of the location and type of Aboriginal material culture—have helped to inform the fieldwork methodology for the CMP.

Three archaeological projects in particular have generated the bulk of all information on the long-term history of Aboriginal occupation at Direl:

- the Victorian Archaeological Survey (VAS) field school in the late 1970s (Coutts 1978, 1980)
- a survey of the Tyrrell and Lambert basins in 1994 commissioned by **Swan Hill District Aboriginal Cooperative** (Edmonds et al. 1997), and
- a field school run by **Aboriginal Affairs Victoria** (AAV; now FP-SR) in 2001 (Richards and Webber 2004).

The first two of these projects account for nearly all of the **116 'Aboriginal Places'** that have been recorded within the area now registered as **'Direl' (VAHR 7427-0187)**, which encompasses the whole of the lake and surrounds (Map 1).

The overarching 'Direl' (VAHR 7427-0187) place registration was the result of a recent **Cultural Heritage Management Plan** (CHMP) for **Buloke Shire Council** to build tourism-related infrastructure at the south edge of the lake (Cooper et al. 2019 with the BGLCAC). The incorporation of all the previously recorded Aboriginal places was justified on the basis of the shared landscape—both physical and cultural.

1.10.2 Early academic research

Early academic research focussed on Aboriginal stone tools found at **Daytrap**, which were remnants from ancient occupation sites near a spring on the northern shoreline of Lake Tyrrell.

Interestingly, these tools were made from **quartzite**, a stone not found in the local area, but which originates from a source some 81 km away (Kenyon and Mahony 1914: 11-12). The extremely small size of these quartzite tools—known as 'microliths'—was thought to reflect both a high level of workmanship, as well as the high social value (and possibly scarcity) of the raw material.

The great number of microliths at Daytrap may have been testament to Lake Tyrrell being a traditional stopping point along a **travel route** from the Murray River to Lake Coorong and Lake Wirrengren (Massola 1969: 123).

1.10.3 VAS field schools, 1977–1979

From the 1970s, the Victoria Archaeological Survey (VAS) was the public body that conducted and administered archaeology in the State of Victoria. Its main objectives were 'to **locate, define, and assess** the major types of archaeological sites in Victoria, with special emphasis on their environmental contexts' (Coutts 1978: 5).

The VAS Field School seasons in 1977–1979 focussed on the survey of the lunette dunes to the north of Lake Tyrrell. **Sixty Aboriginal places** were recorded, including scatters of stone artefacts—with and without hearths (i.e. the remains of campfires)—isolated hearths, a scarred tree, and isolated stone artefacts (Coutts 1980: 25).





While the recording of the Aboriginal places was rudimentary, a key contribution of the VAS surveys was to draw attention to the **very large quantity of Aboriginal cultural material** located around Direl. The increasing threats to many of these places by erosion was noted by Coutts (1980: 26), who likened their significance to the Pleistocene sites of the Willandra lake system.

Macumber's (1991: 56) findings of 'small chert artifacts, pieces of emu shell and burnt clay ... in Box Gully' during the course of his geomorphological research (Section 1.7.1) led to the identification of cultural deposits at Box Gully, which were recognised as dating to the Late Pleistocene (Coutts 1978: 12-14). The site was registered as **'Box Gully' (VAHR 7427-0101)** (Luebbers and Ellender 1991) and was later the focus of excavation, artefact analysis and scientific dating (Richards and Webber 2004; Richards et al. 2007, see Section 1.11).

1.10.4 Swan Hill Aboriginal Cooperative survey, 1993–1994

This study of the broad **Tyrrell and Lambert drainage basin**, which includes Lake Tyrell, was commissioned by Swan Hill District Aboriginal Cooperative (SHDAC) in affiliation with AAV, and funded by the Australian Heritage Commission. The project aimed *'to identify and document Aboriginal places within the Tyrrell and Lalbert drainage systems ...* [and] *to establish significant sites/areas for nomination to the Register of the National Estate'* (Edmonds et al. 1997: 9).

The **margins of Lake Tyrrell and Tyrell Creek** were among the prioritised target areas of the field survey (Edmonds et al. 1997: 21–22).

The survey resulted in recording 182 places in the total basin area, of which nearly 74 per cent were **culturally modified trees** (i.e. with overgrown scars from the removal of bark), mostly located along Tyrrell Creek to the south of the lake (outside of the VAHR 7427–0017 Place extent) (Edmonds et al. 1997: 23).

A large number of places were recorded on the plains and lunette dunes around **Lake Tyrrell** (n=46), including surface scatters of stone artefacts, a scarred tree, hearths, mounds and isolated stone artefacts. A concentration of cultural material was recorded in the Balmers Reserve area, at the southeast corner of the lake (Map 1) (Edmonds et al. 1997: 24).

The stone artefacts are mainly made of **grey silcrete**, with some quartz and chert; hearths contain burnt clay heat retainers; and mounds are formed by lumps of burnt clay and sometimes ashy sediment. The mounds were noted as being in poor condition, owing to disturbance from rabbit burrowing and warren ripping (Edmonds et al. 1997: 25).

The SHDAC project was notable for its **collaboration** with Aboriginal people from the region, its more systematic approach to sampling different landforms, and its awareness of the broader picture of Aboriginal occupation. In particular, the survey took into account the *'perceived significance of Tyrrell and Lalbert Creeks as* **Aboriginal pathways**' (Edmonds et al. 1997: 21).

The report concluded that Lake Tyrrell has:

- **high social and spiritual significance** '[associated] with mythology and an understanding of astronomy', with the creek corridors forming 'pathways' connected to the lakes
- **very high scientific significance**—the archaeology of the lunette preserving 'stratified deposits of cultural material of potential Pleistocene age [giving] the lake margins extremely high research value' (Edmonds et al. 1997: 27).





1.10.5 AAV field school and Box Gully, 2001

Lake Tyrrell was the focus for a field school run by AAV in 2001 in partnership with the North West Region Aboriginal Cultural Heritage program. It aimed to: *'... provide cultural heritage management and archaeological training and experience to Aboriginal people in Victoria ...* [and make] *a contribution to knowledge about the Aboriginal past'* (Richards and Webber 2004: 1; Richards et al. 2007). The field school involved members of the community, Traditional Owners, volunteers, and NWRACH and AAV staff.

The AAV field school undertook three main activities: survey (field walking), artefact recording and excavation.

Systematic survey (of some 77.7 ha) resulted in recording nine Aboriginal places, including isolated stone artefacts, and hearths or hearth remains (Richards and Webber 2004: 32). Only one place—a single quartz flake (VAHR 7427-0171)—was found within 'Direl', on the lake shore.

Further **recording and analysis** of more than **1,000 stone artefacts** from previously recorded places around the lake constitutes the most comprehensive assessment of Aboriginal artefacts in the region (Richards and Webber 2004: 35–53).

However, probably the most significant contribution of the AAV field was the **excavation** and later detailed analysis of cultural deposits at **Box Gully**.

The small-scale excavation (2m²) uncovered sequential, intact layers of Aboriginal occupation in the lunette dune, which radiocarbon dating revealed were aged between **26,600 and 32,000 years ago** (cal BP), although use of the area possibly began as early as around 45,000 years ago (Richards and Webber 2004: 65-8, 75; Richards et al. 2007).

Significantly, this was **first** time that **archaeological evidence** of Aboriginal occupation had been found on the mainland, south of the Murray River, *before* the peak of the last Ice Age (or Last glacial Maximum [LGM], ca. 22,000 years ago).

At this time, there was most likely water in Lake Tyrell (at least seasonally), which was less salty than now—with freshwater available in soaks—but the climate was cooler and drier. Finds included hearths, a small number of flaked stone artefacts (in silcrete and quartz), and food remains such as shells and animal bones, some of which was highly burnt.

The evidence suggests a picture of Aboriginal people **repeatedly camping** at Box Gully, most likely for *'small-scale, short-term, seasonal visits ... over thousands of years'* (Richards et al. 2007: 9). They cooked food on open fireplaces and in earth ovens, including bettongs, bandicoots, hare-wallabies, shingle-backed lizards, emu eggs and fresh water mussels.

1.11 ABORIGINAL PLACES AT DIREL

Key points:

- there are 116 Aboriginal places within the 'Direl' (VAHR 7427-0187-1) registration
- scatters of stone artefacts are the most common type of Aboriginal place, many of which have earth features
- stone artefacts are mainly made from quartz and silcrete (although other materials, such as quartzite, basalt and chert, have been noted)





- the remains of 'hearths' or campfires are common—generally marked by burnt clay lumps and burnt stone
- a small number of artefacts were made after contact with non-Indigenous people from ceramic and glass (Cooper et al. 2019)

The investigations of Aboriginal cultural heritage at Direl have resulted in the recording of **more than a hundred Aboriginal places.** These places **range** from ones that are made up of multiple 'components'—for example, scatters of stone artefacts together with the remains of 'hearths' or campfires, and excavated deposits of ancient occupation such as at Box Gully—to single stone artefacts, object collections, or low-density scatters of artefacts (i.e. LDADs).

Within the boundaries of the overarching Aboriginal cultural place of 'Direl' (VAHR 7427-0187), there are **116 registered places** with **159 individual components** (Figure 13).

Over half of these components are **artefact scatters** (n=85; 53%); **earth features** such as hearths and mounds are common (n=52; 32%); and there are smaller numbers of **low density artefact distributions** (LDADs), which consist of either single or small numbers of stone artefacts (n=19; 12%). There are also two **object collections**, one **Aboriginal cultural place** and a **scarred tree**. These different component types are summarised below.

These places and components have been **located** across large areas of Direl, with particular concentrations to the northeast and southeast of the lake, and at the 'neck' of the lake near Daytrap Corner.

The level of **accuracy** (e.g. location) and **detail** of these records varies according to the methodology used by a particular type of study/investigation at the time. While the records from the 1970s–90s are fairly rudimentary, some places have been thoroughly investigated and recorded, notably Box Gully (VAHR 7427-0101) (see discussion in Section 1.10.5).

A similar range of places and component types to that seen at Direl has been recorded in the **broader region**; however, scarred trees are more frequent, especially along Tyrell Creek.




Figure 13: Place 'components' within 'Direl' (VAHR 7427-0187-1).

1.11.1 Artefact scatters

There are **85** stone artefact scatters located within Direl, many of which also have hearths associated with them. Stone artefacts are most commonly made from silcrete and quartz, and largely represent the debris left over from stone flaking or knapping to produce tools.

One scatter, 'Lake Tyrrell' (VAHR 7427-0001-1), contains numerous stone '**microliths**', located near a freshwater spring on the northwest shoreline of Lake Tyrrell. These specialised stone tools were probably hafted onto short handles and used as multi-purpose tools, and generally date to the Late Holocene in southeastern Australia, from around 4,500 years ago (see e.g. Hiscock 2008; Hiscock and Maloney 2017).

Concentrations of artefact scatters have been recorded in a number of areas around Direl. For example, 32 artefact scatters have been recorded at 'The Soaks', near an ephemeral freshwater water source near the northern shoreline of Lake Tyrrell. Nearly half of these scatters also have hearths (including burnt clay lumps). Artefacts are made of a variety of stone materials, including silcrete, quartz, basalt/greenstone, quartzite, flint/chert, siliceous shale, and jasper.

The 'Tyrrell Lunette' scatters in the lunette dunes on the eastern side of the lake contain mainly silcrete artefacts and clay balls from hearths.

Eleven scatters—the 'LT' places—are concentrated near the southeast shoreline of the lake and within Balmers Tank Reserve. A small number of these have remnant hearths.

The 'Cheetham Salt' scatters (n=6), on the western shoreline of the lake, near Daytrap Corner, contain artefacts of quartz and/or silcrete at various densities.





The largest number of stone artefacts (n=62) were recorded at 'Direl AS1' (VAHR 7427-0192-1), on the southwest shoreline of the lake, during the recent CHMP 15200 (Cooper et al. 2019). All the stone artefacts are of quartz, and there is one retouched glass artefact.

1.11.2 Low Density Artefact Distributions (LDADs)

There are **19 LDAD** components registered in Direl, from five recorded places. These consist of low to very low density scatters of surface artefacts of silcrete and quartz.

'Direl LDAD 1' (VAHR 7427-0186, components -2 to -11), on the southwest shoreline, was also recorded during CHMP 15200 (Cooper et al. 2019). It contains ten artefacts of quartz and silcrete, as well as a 'geometric microlith' made of ceramic. This tool provides evidence of the more recent phase of Aboriginal occupation at Direl, during the 'post-contact' period (see also Section 1.8.3).

1.11.3 Earth features

There are **52 earth feature components** registered within Direl, mainly consisting of hearths (n=46), although five are mounds and one is a soil deposit (i.e. the excavated hearth from 'Box Gully' [VAHR 7427-0101], see Section 1.10.5). Hearths were identified by the presence of burnt clay lumps or balls and sometimes burnt stone. Many are associated with surface scatters of stone artefacts.

Numerous hearths have been found eroding from the lunette dunes to the northeast and east of Lake Tyrrell (e.g. at the 'Tyrrell Lunette' places).

Three of the earth mounds are within metres of the Mallee Rally track on the south-eastern shoreline.

1.11.4 Aboriginal cultural place

The 'Aboriginal cultural place' is the overarching 'Direl' (VAHR 7427-0187-1) place, comprising the study area of the CMP. As mentioned above (Section 1.10.1), Direl incorporates over 100 registered Aboriginal places, and was registered as part of CHMP 15200 (Cooper et al. 2019).

The **extent** or boundaries of Direl—made up of Lake Tyrrell and the lunette dunes to the east—was approved by the RAP (BGLCAC) in its jurisdiction. The report notes, however, that this extent is open to revision, especially in consultation with other Traditional Owner groups (Cooper et al. 2019: 145).

The **significance statement** affirms that Direl (VAHR 7427-0187) is an important place for the **Wotjobaluk Peoples**, including the Wotjobaluk, Jaadwa, Jadawadjali, Wergaia, and Jupagulk peoples (see Section 3 for a detailed analysis of the significance of this place).

1.11.5 Scarred tree

The only scarred/culturally modified tree at Direl, 'LT 48' (VAHR 7427-0155-1), is located near the southeast shoreline of the lake. The single scar, most likely from the removal of the bark to make a **shield**, was recorded as being on a dead Black Box eucalypt (i.e. *Eucalyptus largiflorens*). However, it should be noted that this type of eucalypt is not characteristic of Direl's plant communities (i.e. not one of the Woorinen Mallee [EVC 824] eucalypts; see Section 1.7.3).

1.11.6 Object collections

The two **object collections** within Direl represent isolated stone artefacts from 'Lake Tyrrell LDAD 1' (VAHR 7427-0188-2) and 'Lake Tyrrell LDAD 2' (VAHR 7427-0189-2), which were collected and relocated nearby to avoid damage by vehicles.





1.12 INTANGIBLE HERITAGE

The Traditional Owner groups consulted for the CMP did not provide specific information for Direl about **'intangible heritage**'—that is, the wealth of knowledge and skills that is transmitted from one generation to the next, through oral tradition, performing arts, social practices, rituals, festivals, and traditional craft practices. Despite this, sacred areas and gender-sensitive areas at Direl were alluded to by some of the Traditional Owners during informal conversations in the field.

The **significance statement** for the registration of '**Direl**' (VAHR 7427-0187-1) (Co) records the **intangible heritage value** of Direl as **very high**, given the links it provides with the ancestors of Aboriginal people over thousands of years (see Section 3).

Historical sources (see Section 1.8.3) also attest to the highly significant intangible heritage associated with Direl, particularly regarding *Boorong* astronomical knowledge.

1.13 CONCLUSIONS

- 'Direl' (VAHR 7427-0187-1) is a highly significant Aboriginal place (culturally, scientifically and archaeologically)—and yet has been relatively understudied
- The natural setting of Direl—a semi-arid region of dunes, saline groundwater inflows and ephemeral creeks—intertwines with a complex and important cultural landscape
- Direl remains a significant place to many Traditional Owner groups
- Aboriginal people have been making use of Direl since the late Pleistocene, possibly as early as 45,000 years ago, but regularly between around 27,000–32,000 years ago
- More recently, historical accounts describe the seasonal use of Direl by Aboriginal people, and the skills and knowledge they applied to living in a semi-arid environment
- The Boorong people's knowledge of astronomy (recorded by W. E. Stanbridge)—linked to the landscape, seasonal patterns and animals—forms an important aspect of the cultural heritage significance of Direl
- The arrival of non-Indigenous peoples to Direl brought a new set of land uses and management practices—including broadscale clearing of native vegetation, grazing and cropping—which have threatened the preservation of Aboriginal cultural heritage by exacerbating erosion
- Modern recreational uses of Lake Tyrrell also threaten cultural heritage, including the Mallee Rally vehicle race, and trampling caused by tourism
- Previous archaeological studies demonstrate the richness and variety of Aboriginal cultural heritage at Direl—including artefact scatters, LDADs, earth features, and a scarred tree

Further recordings of Aboriginal places and components were carried out during the field survey undertaken for the CMP, the results of which are presented in the following Section 2. The CMP aims to identify the threats to cultural heritage at Direl and present a management plan with the aim of minimising, mitigating, or eliminating the threats.





This section describes the methods, results and main findings of the fieldwork undertaken at Direl for the CMP. The **aims** of the fieldwork were to:

- understand the nature and location of cultural heritage material at Direl
- assess the condition of a sample of previously recorded VAHR places
- identify the main threats to cultural heritage, and
- assist the development of conservation policies.

The data collected during the fieldwork forms a substantial contribution to the development of cohesive management strategies (Sections 5 and 6) for protecting Aboriginal cultural heritage, with respect to the cultural significance of Direl.

2.1 METHODOLOGY

The **methods** included:

- field survey on foot within **eight designated survey areas**
- the identification and recording of:
 - o a sample of previously recorded Aboriginal VAHR places/components
 - any new Aboriginal cultural heritage material and features in previously unsurveyed areas (for submission to the VAHR)
 - \circ $\;$ the type, nature, extent, and cultural significance of various landforms, and
 - $\circ \quad$ activities and impacts posing a threat to the cultural heritage
- gaining the **perspectives** of Traditional Owner representatives (in the TORG) while on Country.

Informal consultation with representatives of the TORG involved discussing management strategies and the potential for future investigations (Section 6) and was ongoing throughout the field survey.

2.1.1 Survey strategy

Field survey involved a combination of systematic/targeted and opportunistic survey on foot.

The **survey team** varied in size, made up of: up to four archaeologists/Heritage Advisors from DVC&A; up to 14 nominated representatives of Traditional Owner groups; and up to four FP-SR staff.

The survey was undertaken over **three weeks** in February 2020 and April 2021. It was supervised by Jeff Theys and Anna Garamszegi (DVC&A) during weeks 1 and 2, and by Paul Kucera (DVC&A) during week 3.

Priority areas within each survey area were identified based on the nature of the landscape, the geographic context, the potential for locating Aboriginal cultural heritage material, and landform sensitivity.

Records were taken using specialised recording forms (including 'place inspection forms' to update records in the VAHR), digital photography and handheld DGPS units (Trimble GeoXH 6000 and Trimble Geo 7X; for spatial and artefact data). DGPS units were also used to navigate to previously recorded VAHR places and keep the survey team in the appropriate land parcels.





The **locations chosen for survey** in the CMP were informed by:

- consultation with the TORG
- the results of previous investigations, which identified the range of landforms where Aboriginal cultural heritage is concentrated, e.g. raised areas beside the lakeshore or on the fringes of the lakebed, on top of lunette dunes, and eroding from banks
- areas that lacked records of Aboriginal places
- the goal to sample a range of different landforms and different current land-uses, and
- accessibility (e.g. vehicle access and private property).

Considering the large area of Direl, **survey units** were defined as large scale **transects**: mostly of approximately 500 m in length, with survey participants generally spaced about 10 m apart. However, in some locations the spacing and length of the transect was necessarily shorter. In broader landforms and areas with heavy vegetation and mixed visibility, more **opportunistic survey** was conducted.

Participants carried flags, placing them beside possible cultural material and features. Afterwards, the survey team divided into smaller groups to record the cultural material and features.

Each survey unit was allocated a roughly similar amount of time to allow for a balanced and broad capture of the various landforms around Direl. However, the survey methods needed to remain flexible to take into account access restrictions, safety considerations and weather conditions.

2.1.2 Survey areas

The eight areas selected for survey within Direl are **located** on both sides of Lake Tyrrell (Map 2; Table 1). On the eastern side of the lake, most of these areas had not been previously surveyed. In contrast, most of the areas on the western side of the lake had previously been subject to archaeological survey.

The main **purpose of survey on the western side** of the lake was to inspect and assess the condition of previously recorded VAHR places. These included artefact scatters or multi-component places with earth features, many of which had defined extents of moderate size (e.g. up to 80 x 30 m). The narrow terrain on this side of the lake is broadly similar across the survey areas, made up of lake shoreline and adjoining land.

With the exception of Survey Area 3, segments of the **Mallee Rally track** (i.e. the course of the June 2018 event) were surveyed in all areas. The rally course forms a complete circuit of Lake Tyrrell (Map 6), using both long-eastablished segments of track as well as tracks such as 'Lake Tyrrell Road' on the west and southwest of the lake. For the most part, the course follows what appears to be the main 4WD/dry weather, unsealed track around the lake. Secondary deviations of track and access tracks connected to the main circuit are evident at numerous points around the lake. In the CMP and this public report, the term 'Mallee Rally track' is used for sections of track that appear to relate specifically to the event.

Access to some areas around the lake was facilitated by members of the Sea Lake Off-Road Club and Cheetham Salt.

Summary details for each survey area—name, size, landform units, location, coverage—are given in Table 1 and described below.





Table 1: Fieldwork Survey Area	as.
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Survey	Area	Size	Landforms	Location / Coverage
Area	name	(km²)		
1	Southeast	4.6	lakeshore (ca. 4.8 km); mouth of	west of Robinvale-Sea Lake Road;
			Tyrrell Creek; low lunette dune	Mallee Rally staging area
				(start/finish point); Mallee Rally
				track (ca. 7.2 km)
2	North	2	lakeshore (ca. 2.4 km); low rises;	southwest of Box Gully; Mallee
			lower hillslope	Rally track (5 km)
3	Northeast	0.4	lunette dune	cropped and grazed land
	lunette			
4	Central	0.02	dune (hillslope and terrace in the	near Daytrap Corner; north of
	West	(16,300 m²)	lower slope)	Cheetham Salt facility; west of
				4WD/Mallee Rally track
5	Central	0.09	low-lying, peninsula (northern half	near Daytrap Corner; north of
	West	(86,200 m²)	only) with promontory; lakeshore	Cheetham Salt facility; east of
				4WD/Mallee Rally track
6	Central	0.03	lakeshore; gentle hillslope; ridge;	north of Daytrap Corner;
	Northwest	(26,000 m ²)	low terrace	4WD/Mallee Rally track (short
				section)
7	Central	0.03	lakeshore; steep hillslope; large	south of Cheetham Salt facility;
	Southwest	(33,100 m²)	terrace	near Bimbourie; Lake Tyrrell
				Road/4WD track (short section)
8	Central	0.02	lakeshore; gradual hillslopes; large	south of Cheetham Salt facility
	Southwest	(23,600 m ²)	terrace	(3.3 km); near Bimbourie; Lake
				Tyrrell Road/4WD track (short
				section)

Survey Area 1 - Southeast

This area extends northeast from Tyrrell Creek along the lakeshore (for approximately 4.8 km). It is bordered by Lake Tyrrell and private land and covers the entire staging area for the Mallee Rally. There are multiple, unsealed vehicle tracks associated with the Mallee Rally, as well as minor access and recovery tracks.

Outside of the staging area, the land is mostly covered by low Mallee shrubs.

The land is currently Crown land leased by the Sea Lake Off-Road Club.

Survey Area 2 - North

This area includes land gradually sloping down to the north and northeast shoreline of Lake Tyrrell. It includes portions of the Mallee Rally track, as well as vehicle access tracks.

A large portion of this area is vegetated, covered by low Mallee shrubs.

The eastern portion of the area is Crown land, while the remainder is privately owned.





Survey Area 3 - Northeast lunette

This area of dune, near the eastern shoreline of Lake Tyrrell, is part of a larger lunette dune system with undulating north-south ridges.

This privately owned land has been used for farming and grazing, and is mostly devoid of native vegetation.

Survey Area 4 – Central West

Near Daytrap Corner, this area lies around 1.3 km north of the point where Cheetham Salt Road meets the lake shoreline, on the west side of the 4WD/Mallee Rally track.

The sloping terrain and terrace offer excellent views over the lake, as well as to the north and south.

This area is Crown land.

Survey Area 5 – Central West

Also near Daytrap Corner, on the western side of Lake Tyrrell, this area lies around 1.4 km north of the point where Cheetham Salt Road meets the lake shoreline, on the east side of the 4WD/Mallee Rally track.

Forming part of the western shoreline, this area offers unobstructed views of the surrounding terrain in all directions, and excellent, elevated views over the lake.

This area is Crown land; it was previously leased for salt harvesting by Cheetham Salt.

Survey Area 6 – Central Northwest

Located north of Daytrap Corner, this area includes sloping and elevated terrain along the western shoreline of the lake. The small terrace offers unobstructed views of the surrounding landscape and across the lake.

This area is Crown land.

Survey Area 7 – *Central Southwest*

This area on the western side of Lake Tyrrell, is located around 1.7 km northeast of Bimbourie and 2.2 km south of the Cheetham Salt facility.

This more steeply sloping and elevated terrain, extending from the shoreline, offers excellent views across the lake, and from north to south.

This area is Crown land.

Survey Area 8

Like Survey Area 7, this area is on the western side of Lake Tyrrell, around 1.6 km south of Bimbourie.

This area consists of more gently sloping terrain, extending from the shoreline. Parts of the elevated terrace offer excellent views of the surrounding landscape and across the lake.

This area is Crown land.





Map 2: Locations of Survey Areas 1-8 within 'Direl' (VAHR 7427-0187).





2.2 SURVEY RESULTS

2.2.1 Area 1: Southeast

- total area covered of 0.42 km², including 0.14 km² of systematic survey
- vehicle tracks targeted: the main Mallee Rally track; and multiple other interconnecting tracks in the southern end
- opportunistic survey in: a buffer of around 2–5 m either side of vehicle tracks; and areas of the small, lunette dune
- inspection of one previously registered VAHR place: 'Lake Tyrrell Site 24' (VAHR 7427-0127)
- six new place components registered (isolated artefacts, artefact scatter, hearths)

Landforms

The area is largely flat plain alongside the lakeshore in the west, with the linear, lunette dune rising steeply along the east side (Photograph 1).

Vegetation

There are two main types of vegetation: (1) low open, shrubland, generally without trees along the shoreline (Photograph 2), and (2) open shrubland with some grassy sections, medium-sized bushes (chenopod shrubs) and occasional small trees (Mallee eucalypts) on the lunette (Photograph 3).

Ground surface visibility (GSV)

GSV varied by landform:

- shoreline plain: excellent (100%) along vehicle tracks and lower (20–50%) in the scrub alongside tracks
- lunette: excellent (100%) in exposed, wind-eroded areas such as vehicle tracks; moderate (ca. 50%) in partially vegetated areas; and low (0–5%) in areas containing denser vegetation, grass or leaf litter.

Disturbance

There are varying degrees of disturbance in Area 1, ranging from **minor** to **significant** (see Section 4 for detail), including:

- vehicle use associated with the Mallee Rally—including the use of multiple access/recovery tracks (Photographs 4–6); some tracks are less used and partially overgrown (Photograph 7)
- vegetation loss, soil displacement and erosion—resulting from vehicle use
- fences, temporary structures, track markers and protective barriers—including large tyres, hay bales and water drums (Photograph 8)
- imported gravel—throughout much of the southern portion (including at laydown points and spoil heaps), which is used to maintain the Mallee Rally track (G. Bailey, pers. comm., 2019) (Photograph 9)
- wind and water erosion—particularly in the south of Area 1, especially on vehicle tracks and on the slopes of the lunette (Photograph 10, Photograph 11 and Photograph 12)
- rabbit burrowing—which is causing moderate damage on the plain and moderate-high damage on the lunette, and
- rubbish—including abandoned vehicles (e.g. a bus, Photograph 13), tyres, and other temporary structures related to the Mallee Rally, as well as broken bottle glass.





Aboriginal cultural heritage - VAHR places and components

Of the three **previously registered VAHR places** in Survey Area 1, only one was inspected due to time contraints.

'Lake Tyrrell Site 24' (VAHR 7427-0127), located in the north of Area 1, about 10 m east of the Mallee Rally track, was found to be in the same condition as documented in 2017. However, there are signs of water and wind erosion, and there were no clear remains of the hearth features documented in the original place registration (1994).

Newly registered components include:

Southern end

- an **isolated flake** fragment (IA 1) of high-quality quartz (Photograph 14), in a vegetated area between vehicle tracks
- an **isolated flake** (IA 2) of orange/yellow silcrete (Photograph 15), alongside one of the eroding vehicle tracks on the lunette, and
- two **hearth** features (EF 1-2), containing charcoal and fractured heat retainers, on one of the access tracks on the top of the lunette (Photograph 16, Photograph 17).

Northern end

- an **artefact scatter** (AS 2) of 10 flaked stone artefacts (Photographs 18-19), covering part of the Mallee Rally track and areas beside it, and
- a **hearth** (EF 3) in the track footprint.

Only a sample of the artefacts in this scatter were recorded due to time constraints, and further inspection and recording is recommended. A single fish otolith ('earstone') was also recorded at AS2.

The artefacts in Area 1 are made of silcrete (n=9) and quartz (n=3), and include complete and broken flakes (n=6), angular fragments (n=4) and two small cores (Figure 14).



Figure 14: Survey Area 1, flaked stone artefacts.





Photograph 1: Survey Area 1, view from the lunette. Facing northwest. A. Garamszegi (4/2/2020).





Photograph 2: Survey Area 1, shrub vegetation on the shoreline plain. Facing northwest. A. Garamszegi (4/2/2020).



Photograph 3: Survey Area 1, grass, shrubs and trees on the lunette. Facing east. A. Garamszegi (4/2/2020).



Photograph 4: Survey Area 1, east-west vehicle track connecting the multiple north-south tracks. Facing east towards lunette. A. Garamszegi (4/2/2020).



Photograph 5: Survey Area 1, three vehicle tracks visible. Facing northeast. A. Garamszegi (4/2/2020).



Photograph 6: Survey Area 1, multiple tyre tracks on one of the Mallee Rally tracks. Facing north. A. Garamszegi (4/2/2020).



Photograph 7: Survey Area 1, lesser used vehicle access track. Facing southwest. A. Garamszegi (5/2/2020).





Photograph 8: Survey Area 1, intersection of vehicle tracks showing tyre barriers. Facing north. A. Garamszegi (5/2/2020).



Photograph 9: Survey Area 1, imported gravel in a spoil pile. Facing east. A. Garamszegi (5/2/2020).



Photograph 10: Survey Area 1, depth of erosion and soil deposition/'spray' from vehicle use. Facing northeast. A. Garamszegi (5/2/2020).



Photograph 11: Survey Area 1, wind erosion on vehicle track on the loose sandy deposit of the lunette. Facing west. A. Garamszegi (4/2/2020).



Photograph 12: Survey Area 1, deep erosion channel (water flow, wind, vegetation stripping) due to vehicular use. Facing southeast. A. Garamszegi (6/2/2020).



Photograph 13: Survey Area 1, abandoned bus. Facing northeast. A. Garamszegi (5/2/2020).





Photograph 14: Survey Area 1, quartz distal flake (IA 1) found alongside Mallee Rally access track. A. Garamszegi (4/2/2020).



Photograph 15: Survey Area 1, silcrete angular fragment (IA 2), alongside Mallee Rally access track. A. Garamszegi (4/2/2020).



Photograph 16: Survey Area 1, hearth (EF 1) located on the Mallee Rally track. A. Garamszegi (5/2/2020).

Photograph 17: Survey Area 1, location of hearth (EF 2) on the Mallee Rally track. Facing south. A. Garamszegi (5/2/2020).



Photograph 18: Survey Area 1, silcrete core at AS 2, alongside the Mallee Rally track. A. Garamszegi (6/2/2020).



Photograph 19: Survey Area 1, north end, showing artefact scatter (AS 2), on the Mallee Rally track. Facing south. A. Garamszegi (6/2/2020).





2.2.2 Area 2: North

- total area covered of 0.22 km², including 0.14 km² of systematic survey
- Mallee Rally track, connecting vehicle tracks (less tracks than in Area 1), and peninsula surveyed systematically
- inspection of two previously registered places: 'Lake Tyrrell LDAD 3' (VAHR 7427-0190) and 'Lake Tyrrell LDAD 3A' (VAHR 7427-0191)
- two new place components registered (isolated artefact, artefact scatter)

Landforms

Area 2 is made up of gentle hillslope, declining towards Lake Tyrrell (Photograph 20), with some undulations and natural erosion channels. The peninsula is largely flat, with minor undulations and steeper slopes close to the shoreline (Photograph 21).

Vegetation

Low open scrub covers all sections of the survey area, except along vehicle tracks and in isolated patches eroded by wind (Photograph 22).

Ground surface visibility (GSV)

Along the Mallee Rally track and other vehicle tracks, GSV was excellent (100%) (Photographs 23-24). Within vegetated area, GSV was low to moderate (20–50%) (Photograph 22).

Disturbance

Ground disturbance is evident throughout Area 2:

- vehicular use—the Mallee Rally track and other vehicle access tracks (Photograph 23-24)
- wind and water erosion—poses significant conservation issues, especially in areas of exposed sediment, and along the rally track (Photograph 25)
- rubbish—including tyres, car parts and discarded bottles (Photograph 26)
- rabbit burrowing and grazing—rabbit activity has caused significant disturbance (Photograph 27); the presence of livestock is indicated by droppings and bones, and is probably facilitated by poorly maintained fences along the Crown land boundaries (Photograph 28)

Aboriginal cultural heritage - VAHR places and components

Six components of **two previously recorded places** were inspected: 'Lake Tyrrell LDAD 3' (VAHR 7427-0190) and 'Lake Tyrrell LDAD 3A' (VAHR 7427-0191). 'Lake Tyrrell' (VAHR 7427-0001) was not inspected due to time constraints.

These place components are located immediately beside the Mallee Rally track along a drainage channel. Two additional quartz flakes were recorded as part of this low-density artefact distribution. The flaked stone artefacts were in good condition, and include a large quartz core and two geometric microliths of silcrete.

Newly registered components include:

- an isolated artefact (IA 3) of flaked historic, bottle glass; on a bend in the Malley Rally track, and
- an artefact scatter (AS 3) of 29 flaked stone artefacts.





The **glass artefact** indicates a phase of Aboriginal occupation during the contact period (Photograph 29).

The **artefact scatter** was identified at a vehicle track intersection on the northern Mallee Rally track (Photograph 31). A range of silcrete flaked artefacts, of varying colour and texture, was recorded (Photographs 30-31).

Of the 30 flaked stone artefacts recorded in Survey Area 2—including flakes (n=18, 58%), angular fragments (n=4, 13%) and small cores (n=9, 29%)—most are made from silcrete (n=26, 87%), with a few made from quartz (n=3), and one of quartzite (n=1) (Figure 15).



Figure 15: Survey Area 2, flaked stone artefacts.





Photograph 20: View across Survey Area 2 showing Mallee Rally track. Lake Tyrrell visible in the distance. Facing southeast. A. Garamszegi (11/2/2020).



Photograph 21: Survey Area 2, peninsula section. Facing west. A. Garamszegi (10/2/2020).



Photograph 22: Survey Area 2, typical vegetation cover. Facing south. A. Garamszegi (10/2/2020).



Photograph 23: Survey Area 2, Mallee Rally track with tyre tracks visible. Facing east. A. Garamszegi (10/2/2020).



Photograph 24: Survey Area 2, vehicle access track running alongside fence line. Facing south. A. Garamszegi (10/2/2020).





Photograph 25: Survey Area 2, extreme water erosion along Mallee Rally track. Facing north. A. Garamszegi (10/2/2020).



Photograph 26: Survey Area 2, car door and tyre dumped near the Mallee Rally track. S. Atkinson (10/2/2020).



Photograph 27: Survey Area 2, rabbit burrowing. Facing west. A. Garamszegi (10/2/2020).



Photograph 28: Survey Area 2, poorly maintained fenceline. Facing north. A. Garamszegi (10/2/2020).



Photograph 29: Survey Area 2, glass artefact (IA 3) with retouch. A. Garamszegi (10/2/2020).





Photograph 30: Survey Area 2, silcrete core (AS 3). A. Garamszegi (11/2/2020).



Photograph 31: Survey Area 2, location of artefact scatter (AS 3) (indicated by yellow flags) on the eroding Mallee Rally track. A. Garamszegi (11/2/2020).

2.2.3 Area 3: Northeast Lunette

- total area covered of 0.31 km², including 0.14 km² of systematic survey
- survey focussed on a lunette dune rise, where there had been no previous survey or recordings (Photograph 32)
- vehicle tracks not present
- severe erosion has exposed a large amount of Aboriginal cultural heritage material (thousands of artefacts) on the surface
- three new place components registered (artefact scatter and hearths)

Landforms

Part of the broader lunette system, the entire survey area comprises the upper slope and rise of the dune. Outside of the survey area, natural ephemeral drainage channels (partially vegetated) run down the lower slope of the dune.

Vegetation

No natural vegetation is present within Area 3.

Ground surface visibility (GSV)

GSV was excellent (ca. 100%) throughout the area, with only lines of small, remnant wheat plants partially obscuring the ground surface (Photograph 35).

Disturbance

Ground disturbance through Area 3 includes:

- clearing and ploughing—extensive throughout the area (former wheat cropping) (Photograph 35)
- severe wind and water erosion—resulting from agricultural use, including loss of topsoil (blowouts, dust clouds, whirlwinds) (Photograph 33, Photograph 34)

Aboriginal cultural heritage - VAHR places and components

There are **no previously registered places** in Area 3, which not been formally surveyed in the past.





Traditional Owners, archaeologists, and the landowner have previously carried out **informal inspection** of the area, noting the presence of cultural heritage material and culturally significant areas (R. Knight pers. comm, 2019).

Newly registered components include:

- an artefact scatter (AS 4) (n=51)
- two hearth features (EF 4-5), with heat retainers (stone and clay balls) and/or charcoal fragments.

Given the extensive size of the artefact scatter only a sample was recorded on the lunette surface, representing the range of stone raw materials and artefact types.

Flaked stone artefacts are mostly made from a variety of different silcrete materials (Photograph 36). Amongst the recorded sample of 51 artefacts, complete and broken flakes (n=86, 57%) and angular fragments (n=49, 32%) are most common, with small numbers of cores (n=9) and formal tools (n=7) (including microliths) (Figure 16). The artefacts are mostly made of silcrete (n=83, 55%) and quartz (n=61, 40%) (Photograph 36, Photograph 37), though a range of other raw materials is present, including quartzite, chert and basalt. There are also hammerstones (Photograph 38) and a basalt grindstone (Photograph 39). Fragments of emu eggshell were also present.

The two **hearth** features—both located within the scatter of stone artefacts—are eroding from the lunette (Photograph 40, Photograph 41).

During the survey of Area 3, the field team was shown the location of a burial of **Ancestral Remains** by one of the Traditional Owners among the group. It was understood that these remains (of a single individual) had been previously identified by an archaeological investigation but were not recorded on the VAHR. The Traditional Owners present held a discussion and firmly requested that the remains *not* be recorded as part of this survey. A representative of the FP-SR reported the (re)discovery to the Ancestral Remains Unit (ARU), as per formal procedure. It is understood that the Ancestral Remains will be recorded at a later date, with a team comprising FP-SR, ARU staff and Traditional Owners.





Figure 16: Survey Area 3, flaked stone artefacts.



Photograph 32: Survey Area 3, showing lunette dune with plough lines and survey participants. Facing southeast. A. Garamszegi (12/2/2020).





Photograph 33: Dust vortex ('willy willy') observed from Survey Area 3. Facing southeast. A. Garamszegi (11/2/2020).



Photograph 34: Survey Area 3, with Lake Tyrrell in background, showing artefacts (AS 4) marked by flags. Dustcloud in centre. Facing southwest. A. Garamszegi (12/2/2020).



Photograph 35: Survey Area 3, remnant crop. Facing east. A. Garamszegi (12/2/2020).





Photograph 36: Survey Area 3, silcrete geometric microlith (AS 4). A. Garamszegi (12/2/2020).



Photograph 37: Survey Area 3, quartz flake (AS 4). A. Garamszegi (12/2/2020).



Photograph 38: Survey Area 3, hammerstone of volcanic rock (AS 4). A. Burrow (12/2/2020).



Photograph 40: Survey Area 3, eroding hearth (EF 4). A. Garamszegi (12/2/2020).



Photograph 39: Survey Area 3, grindstone (AS 4). A. Burrow (12/2/2020).



Photograph 41: Survey Area 3, eroding hearth with fragmented clay balls (EF 5). A. Burrow (12/2/2020).





2.2.4 Area 4: Central West

- total area covered of 16,269 m² (systematic survey)
- located on western shoreline of Direl, on the western side of a sharp bend in the Mallee Rally /4WD track
- survey focussed on inspection of one previously registered place, 'Cheetham Salt 6' (VAHR 7427-0181), and surrounding area

Landforms

Area 4 is made up of the undulating hillslope and sandy terrace of a high dune. The terrace is located at its northern tip, in the lower slopes (Photograph 42). 'Cheetham Salt 6' (VAHR 7427-0181) is located on this terrace.

Vegetation

Typical vegetation cover consists of low chenopod shrubs and grasses. Denser cover generally occurs on the slopes. Very few Mallee trees are present, mainly on the terrace (Photograph 43).

Ground surface visibility (GSV)

GSV was low (ca. \leq 25%) in pockets of more dense vegetation, but moderate to excellent on the sparsely vegetated terrace (up to 100%) (Photograph 43-44).

Disturbance

Ground disturbance in Area 3 includes:

- vehicle use—along the main 4WD track (bisecting the terrace) and an offshoot track from the main 4WD track leads onto the scoured terrace (e.g. multiple tyre tracks, boundary markers on bend (Photograph 45); severe soil erosion to basal clay [at ca. 1.5 m depth] on main track (Photograph 46)
- wind and water erosion—the terrace (in particular the north half) contains large, eroded exposures, with a loss of topsoil (ca. 100–300 mm) and vegetation, and large eroded run-off channels (Photograph 47-48)
- rabbit burrowing—on slopes burrows have caused significant damage, causing localised loss of vegetation and sand/topsoil (Photograph 49)
- litter—some deliberately dumped rubbish and probably windblown litter (a mix of historical and modern materials, e.g. metal, glass, cardboard, tyres, tarpaulin, modern fires)

According to Diana Smith (FP-SR), the terrace has degraded dramatically over the course of three to four years since she last visited. It is understood that this location was used as an emergency stopping point during the 2018 Mallee Rally event.

There is also a small sign stating 'Caution Cultural Heritage Site Do Not Disturb' on the north side of the main track in this vicinity.

Aboriginal cultural heritage - VAHR places and components

One previously recorded place was inspected: 'Cheetham Salt 6' (VAHR 7427-0181).

Aboriginal cultural heritage was observed across the surface of the terrace—in particular the eroded zones—over an area of around 2,500 m². The nature and condition of the place appears to be similar





to the original recording, however, flaked stone artefacts were located over a somewhat larger area (Photograph 50). The location of many artefacts has probably been altered by erosion and vehicle movement.

Forty-five flaked **stone artefacts** were recorded during the inspection, including a range of raw materials and types (Figure 17). Most artefacts are made from silcrete (n=22, 49%) and quartz (n=19, 42%), with a few in quartzite (n=3) and chert (n=1). They include broken and complete flakes (n=29) (Photograph 51), angular fragments (n=12), cores (n=3), and a blade (n=1). Tool types include a geometric microlith and a notched tool; one of the cores is a microblade core.



Figure 17: Survey Area 4, flaked stone artefacts at VAHR 7427-0181.

As well as the stone artefacts, one clay ball was observed, which is likely to be a heat retainer from a hearth/oven. The remains of two, probable, eroding hearths were also identified by Traditional Owners within the large scald. They contain burnt clay and charcoal fragments, and traces of ash (Photograph 52).





Photograph 42: Survey Area 4, view of the terrace from its western end, showing the offshoot vehicle track and surface artefacts (marked by flags) in the eroded area. Facing southeast. P. Kucera (20/4/2021).



Photograph 43: Survey Area 4, the central area of the terrace looking towards the peninsula and lake, showing typical vegetation cover, GSV and the exposed area with artefacts. Facing northeast. S. Cath-Garling (20/4/2021).





Photograph 44: Survey Area 4, ground surface visibility on the terrace. Facing east. S. Cath-Garling (20/4/2021).



Photograph 45: Survey Area 4, west end of the terrace showing recent vehicle tracks within the denuded area. Facing west. S. Cath-Garling (20/4/2021).



Photograph 46: Survey Area 4, erosion and loss of landform along the 4WD vehicle track through the east end of the terrace. Facing south. A. Donald (20/4/2021).



Photograph 47: Survey Area 4, scalding and erosion channels in the denuded area. Facing southeast. P. Kucera (20/4/2021).



Photograph 48: Survey Area 4, View across the large, eroded and deflated area containing artefacts and earth features. Facing northwest. P. Kucera (20/4/2021).



Photograph 49: Survey Area 4, ground disturbance caused by rabbits in the upper slope of the dune. Facing north-northeast. S. Cath-Garling (20/4/2021).





Photograph 50: Survey Area 4, the eastern part of the terrace, showing a concentration of artefacts (VAHR 7427-0181). Facing east. S. Cath-Garling (20/4/2021).



Photograph 51: Survey Area 4, a silcrete flake at VAHR 7427-0181. S. Cath-Garing (20/4/2021).



Photograph 52: Survey Area 4, remnants of a hearth at VAHR 7427-0181. Facing north. I. Bilbao Malave (20/4/2021).





2.2.5 Area 5: Central West

- total area covered of 86,181 m² (systematic survey)
- survey focused on the northern half of a large, low promontory that extends into the lake and the inspection of four Aboriginal places—'Cheetham Salt 2' (VAHR 7427-0177), 'Cheetham Salt 3' (VAHR 7427-0178), 'Cheetham Salt 4' (VAHR 7427-0179), 'Cheetham Salt 5' (VAHR 7427-0180)—and their immediate surrounds

Landforms

The shoreline of Area 5 is low-lying and generally flat in appearance, but includes low sandy ridges (Photograph 53). 'Cheetham Salt 2' (VAHR 7427-0177) and 'Cheetham Salt 3' (VAHR 7427-0178) are located on one of these ridges, which may be a small lunette. The promontory extends from the northern tip of the ridge (Photograph 54), with medium to large claypans on its western side, which are ringed by low sand bars. 'Cheetham Salt 4' (VAHR 7427-0179) is located on the promontory.

Vegetation

Vegetation on the promontory is generally dense, dominated by low, salt-tolerant shrubs (e.g. salt bush) and succulents (e.g. pigface) (Photograph 53, Photograph 61).

Ground surface visibility (GSV)

GSV varied across the vegetated areas, ranging from patchy ($\leq 25\%$) to good (ca. 50-75%). In areas affected by erosion (e.g. scalds) GSV was excellent (100%).

Disturbance

In most of Area 5, ground conditions appear to be stable and generally good, especially where vegetation has a strong hold. However, ground disturbance in some areas includes:

- wind and water erosion—e.g. large scalded and denuded areas on the promontory (loss of topsoil and vegetation), and erosion gullies, especially at the location of Aboriginal places 'Cheetham Salt 2' (VAHR 7427-0177), 'Cheetham Salt 3' (VAHR 7427-0178), and 'Cheetham Salt 4' (VAHR 7427-0179) (Photograph 55).
- rabbit burrowing/activity—minimal on the low-lying promontory, but moderate on slightly sloping land in the south
- vehicle use—the ruts of former vehicle tracks (now mostly overgrown), and
- litter—historic and fencing materials (e.g. metal implements, scrap metal, glass, timber, and cables), possibly from former salt harvesting; in the vicinity of 'Cheetham Salt 2' (VAHR 7427-0177) and 'Cheetham Salt 4' (VAHR 7427-0179).

Aboriginal cultural heritage - VAHR places and components

Two **previously recorded places** were inspected: 'Cheetham Salt 2' (VAHR 7427-0177) and 'Cheetham Salt 4' (VAHR 7427-0179). Two places, 'Cheetham Salt 3' (VAHR 7427-0178) and 'Cheetham Salt 5' (VAHR 7427-0180), were not able to be re-located, possibly due to dense vegetation cover and erosion.





While the original, single artefact registered at **'Cheetham Salt 2' (VAHR 7427-0177)** was not relocated, a scatter of 22 artefacts was recorded, including eight items of possible flaked glass (Photograph 56-7). The artefacts are spread across an area of around 2,800 m² on the low sandy ridge. It is highly likely that the single artefact originally registered as 'Cheetham Salt 3' (VAHR 7427-0178) is a component of this scatter.

Flaked stone artefacts are mainly of quartz (n=9, 41%) (Photograph 58), with small numbers in chert (n=2), quartzite (n=2), and silcrete (n=1) (Figure 18) (Photograph 59, Photograph 60). They mainly consist of flakes and broken flakes (n=12); there is one angular fragment and one quartzite core.

A **single quartz flake** was found approximately 35 m southwest of the 'Cheetham Salt 2' (VAHR 7427-0177) scatter, within a small scald. It was recorded as a separate 'isolated artefact' component (IA 10) of Direl place.



Figure 18: Survey Area 5, flaked artefacts at VAHR 7427-0177.

At the northern end of Area 5, on the promontory, the survey team found an artefact scatter with probable earth features (i.e. hearths) at the location of **'Cheetham Salt 4' (VAHR 7427-0179)**. The artefacts are spread across an area of around 7,250 m² on a large exposed area with erosion gullies (Photograph 61). The nature and condition of this place appears to be similar to the original recording, however, flaked stone artefacts were located over a much larger area. Given the extent of erosion, it is likely that many of the artefacts are not in their original context and location.

Twenty-six artefacts were recorded, including five pieces of possibly flaked/utilised glass (with retouch and/or usewear) (Photograph 62, Photograph 63) (Figure 19). All **stone artefacts** are of quartz (n=11, 42%) and silcrete (n=10, 39%) (Photograph 64, Photograph 65). They mainly consist of flakes and broken flakes (n=15), with a small number of angular fragments and a silcrete blade.

One of the glass pieces is a **bottle base with flake scars** around its edge suggesting it may have been used as a core (Photograph 63). The manufacturer's mark on this bottle fragment—'[PR]OPERTY OF TH[E] MANUFACTURERS BOTTLE CO. OF VIC[TORI]A PTY LTD' and 'AGM'—indicates that it was



manufactured sometime between 1922–1929. The glass objects here and at 'Cheetham Salt 2' (VAHR 7427-0177) may have been brought in by workers harvesting salt (Photograph 66), with some materials being used or re-worked by Aboriginal people in the early decades of the 20th century.

All three of the probable **hearths** have been exposed by erosion (Photograph 67). They are circular/oval and slightly convex in form, and consist of burnt clay fragments and hints of ashy, blackened soil.



Figure 19: Survey Area 5, flaked artefacts at VAHR 7427-0179.



Photograph 53: Survey Area 5, view across the area, showing typical vegetation cover and the location of VAHR 7427-0181 and the dune (centre left). Facing west. P. Kucera (21/4/2021).





Photograph 54: Survey Area 5, view across the promontory at the northern end. Facing west-southwest. P. Kucera (21/4/2021).



Photograph 55: Survey Area 5, erosion scour with deep gullies on the northeast side of the promontory at VAHR 7427-0179. Facing northwest. I. Bilbao Malave (21/4/2021).





Photograph 56: Survey Area 5, inspection of VAHR 7427-0177 and flagging artefact positions. Facing northwest. P. Kucera (21/4/2021).



Photograph 57: Survey Area 5, possible utilised glass fragment at VAHR 7427-0177. I. Bilbao Malave (21/4/2021).



Photograph 58: Survey Area 5, a quartz flake at VAHR 7427-0177. S. Cath-Garling (21/4/2021).





Photograph 59: Survey Area 5, a chert flake at VAHR 7427-0177. S. Cath-Garling (21/4/2021).



Photograph 60: Survey Area 5, a silcrete flake at VAHR 7427-0177. S. Cath-Garling (21/4/2021).



Photograph 61: Survey Area 5, inspection of VAHR 7427-0179 and flagging artefact positions, showing ground conditions. Facing southeast. P. Kucera (21/4/2021).





Photograph 62: Survey Area 5, possible utilised glass fragment (with retouch/usewear) at VAHR 7427-0179. S. Cath-Garling (21/4/2021).



Photograph 64: Survey Area 5, a silcrete flake at VAHR 7427-0179. I. Bilbao Malave (21/4/2021).



Photograph 63: Survey Area 5, possible flaked bottle base (core) at VAHR 7427-0179. I. Bilbao Malave (21/4/2021).



Photograph 65: Survey Area 5, a quartz angular fragment at VAHR 7427-0179. S. Cath-Garling (21/4/2021).



Photograph 66: Survey Area 5, dumped timber and iron cabling possibly related to salt harvesting. Facing southwest. P. Kucera (21/4/2021).



Photograph 67: Survey Area 5, remnants of a hearth at VAHR 7427-0179. S. Cath-Garling (21/4/2021).



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[NB: See full report for observations and brief inspections of the conditions of the landscape (ca. 3 km) between the locations of Survey Areas 4, 5 and 6]

2.2.6 Area 6: Central Northwest

- total area covered of 26,061 m² (systematic survey)
- survey focussed on part of a small cove-like area on the lake's western shoreline, which does not appear to have been surveyed before
- six new place components registered (isolated artefacts)

Landforms

This cove-like feature includes the low-lying fringe of the lake edge, areas of adjoining gentle to moderate hillslope, and a sloping ridge that extends into the lake, ending in a small terrace. A small lagoon is encircled by low sandy ridges (Photograph 68, Photograph 69, Photograph 70).

Vegetation

Grasses and low chenopod shrubs are most common in this area. Vegetation cover varies from sparse to more dense, in particular on the grassed slopes (Photograph 71). Shrubs are more common on the lower slope near the lakebed. There are scattered Mallee eucalypts on the hillslope and terrace (none bear cultural scars) (Photograph 68).

Ground surface visibility (GSV)

GSV was low (ca. 5%) on the more densely covered slopes, but moderate to excellent (50-100%) in areas with sparse shrubs or no vegetation, on exposures near the lake, an eroded scald on the terrace, and on vehicle tracks.

Disturbance

Ground conditions varied throughout Area 6. Most of the upper and mid-slopes are in fair to good condition. However, disturbance is evident in the form of:

- vehicle use—vehicle tracks have caused varying degrees of damage (erosion, loss of vegetation) across the ridge, lower slopes, and on the lake edge: the main 4WD track (ca. 6 m wide) has no vegetation and has cut around 500-600 mm into the ridge (Photograph 72, Photograph 73); a secondary track connected to the main track has a wide footprint on the ridge and shoreline (Photograph 74); an overgrown track on the mid-upper hillslope appears to be stable.
- water and wind erosion—erosion gullies on the main 4WD track (Photograph 72); a scald on the terrace (Photograph 75); and run-off damage at the northern end of the area (from a large gully on adjoining private land) (Photograph 76), and
- rabbit burrowing (and possibly other invasive animals)—causing loss of vegetation and topsoil on the slopes (Photograph 77).

Aboriginal cultural heritage - VAHR places and components

Newly registered components include:

- two isolated stone artefacts on the terrace (IA 4-5)
- an isolated, flaked stone artefact (IA 9) on the main 4WD track
- three isolated stone artefacts on the secondary track (IA 6-8)




All the **flaked stone artefacts** are of quartz (n=3) and silcrete (n=3), and consist of flakes or broken flakes, with one angular fragment (Figure 20) (Photograph 78, Photograph 79).

The artefacts located on the vehicle tracks are most likely not in their original context/location.



Figure 20: Survey Area 6, flaked stone artefacts.



Photograph 68: Survey Area 6, showing the hillslope west of the main vehicle track. Facing southwest. P. Kucera (21/4/2021).





Photograph 69: Survey Area 6, view across the survey area from the upper slope to the lake shoreline. Facing northeast. S. Cath-Garling (21/4/2021).



Photograph 70: Survey Area 6, view of the lower slope along the main vehicle track, southern end of the survey area. Facing south. P. Kucera (21/4/2021).



Photograph 71: Survey Area 6, vegetation zones on the slope (grass) and terrace (background). Facing northeast. S. Cath-Garling (21/4/2021).







Photograph 73: Survey Area 6, view of the main vehicle track and impact to vegetation, north of the ridge and terrace. Facing southeast. P. Kucera (21/4/2021).

Photograph 72: Survey Area 6, depth of impact to the ridge and terrace caused by the main vehicle track. Facing south-southeast. P. Kucera (21/4/2021).



Photograph 74: Survey Area 6, view along the secondary vehicle track, showing impacts to vegetation in the low-lying area. Facing north. S. Cath-Garling (21/4/2021).



Photograph 75: Survey Area 6, view to the south from the terrace, showing the scald. Facing south. S. Cath-Garling (21/4/2021).





Photograph 76: Survey Area 6, View of erosional channel originating from adjacent private land and the impact to vegetation. Facing west. P. Kucera (21/4/2021).





Photograph 78: Survey Area 6, isolated quartz flake (IA 9) on the main 4WD vehicle track. I. Bilbao Malave (21/4/2021).

Photograph 77: Survey Area 6, Recent animal ground disturbance mid-slope. Facing south-southwest. S. Cath-Garling (21/4/2021).



Photograph 79: Survey Area 6, isolated silcrete flake (IA 4) on the terrace. S. Cath-Garling (21/4/2021).





2.2.7 Area 7: Central Southwest

- total area covered of 33,110 m² (systematic survey)
- survey focused on the inspection of 'Lake Tyrrell 18' (VAHR 7427-0103) and the surrounding area on the western shoreline

Landforms

This area is made up of undulating hillslope, connecting to sandy terrace on the east that extends out into the lake. The mid-slopes are moderate to steep, with crests along the western boundary of the survey area (Photograph 80). 'Lake Tyrrell 18' (VAHR 7427-0103) is located on the terrace.

Vegetation

The vegetation cover is typical of Mallee scrub, with low chenopod shrubs and grasses, and scattered clusters of Mallee eucalypts (none bear cultural scars). Rosewood/Boonaree (*Alectryon oleifolius*), Broombush (*Melaleuca uncinata*), and a type of spear-grass (possibly *Austrostipa* sp.) were observed on the terrace (Photograph 80).

Ground surface visibility (GSV)

GSV was generally low across the hillslopes and terrace ($\leq 25\%$, but commonly as little as 5%) owing to the thick vegetation cover. However, in eroded and exposed areas and along the vehicle track GSV was good to excellent (75-100%) (Photograph 81, Photograph 82, Photograph 83).

Disturbance

Ground conditions varied across Area 7. Most of the hillslopes and much of the terrace are in fair to good condition and appear stable. However, some disturbance is evident in the form of:

- vehicular use—minimal vegetation loss along the the 4WD track (ca. 2.5 m wide) (Photograph 83); tracks cuts through the western part of the terrace, where 300-400 mm of sand/topsoil has been lost
- rabbit and other animal activity (sporadic)—rabbit burrows, a possible fox den, and other animal activity (possibly sheep) have caused some topsoil and vegetation loss on the slopes and terrace (Photograph 84)
- litter & recent use—scattered glass bottles and a small, probable campfire on the upper slope; dumped rubbish on terrace (glass and ceramic), and
- water and wind erosion—severe impacts to eastern and southern areas of the terrace, moderate damage in northern areas (loss of vegetation and topsoil [at least 800 mm and occasionally down to basal clay]) producing gullies, large deflated areas, scalds and a sandy shelf (Photograph 85-7).

Aboriginal cultural heritage - VAHR places and components

One previously recorded place was inspected: 'Lake Tyrrell 18' (VAHR 7427-0103).

An extensive **scatter of stone artefacts** was observed across an area of ca. 3,400 m² on the terrace, in particular in the large, eroded areas in the north, east (i.e. the sandy shelf) and south (Photograph 88).

Seventy-two stone artefacts were recorded as part of the inspection of the place. A range of stone materials and artefact types is present (Figure 21). Most artefacts are made of silcrete (n=63, 88%) (Photograph 89), with small numbers in quartz (n=6) and sandstone (n=3). Silcrete flakes and flake



fragments make up the bulk of the assemblage. The manufacture of silcrete blades on-site is indicated by three microblade cores and three blades. There is also a round-edged scraper in silcrete.

A large proportion of **silcrete** artefacts have remnants of the weathered outer skin (or 'cortex') of the source material on their surfaces. This suggests that Aboriginal people were preparing stone material on-site to be made into tools, and possibly even that the silcrete was sourced from the vicinity.



Figure 21: Survey Area 7, flaked stone artefacts at VAHR 7427-0103.

Given the severe erosion on the terrace, most (if not all) of these artefacts are probably not in their original location/context.

The nature and condition of 'Lake Tyrrell 18' (VAHR 7427-0103) place appears to be similar to that of previous recordings, however, the hearth remains (i.e. burnt clay clumps) were not re-located.





Photograph 80: Survey Area 7, typical vegetation and ground surface visibility, west end of the terrace. Facing southwest. P. Kucera (22/4/2021).



Photograph 81: Survey Area 7, typical vegetation and ground surface visibility on the midslope. Facing southwest. P. Kucera (22/4/2021).



Photograph 82: Survey Area 7, typical vegetation and GSV in the upper slope zone, contrasted by the cleared private land (at right). Facing southwest. S. Cath-Garling (22/4/2021).





Photograph 83: Survey Area 7, conditions along the vehicle track in the central part of the terrace. Facing east. P. Kucera (22/4/2021).



Photograph 84: Survey Area 7, kangaroo day-beds beneath a Mallee tree on the upper slope. Facing west. S. Cath-Garling (22/4/2021).



Photograph 85: Survey Area 7, view of the blowout/deflated area on the north side of the terrace. Facing southwest. P. Kucera (22/4/2021).





Photograph 86: Survey Area 7, severe erosion and loss of landform in the east end of the terrace, also showing the distribution of artefacts. Facing southeast. Composite photo, P. Kucera (22/4/2021).



Photograph 87: Survey Area 7, severe erosion of the terrace along the sandy shelf in the east/northeast area. Facing northwest. P. Kucera (22/4/2021).









Photograph 89: Survey Area 7, example of a silcrete flake at VAHR 7427-0103. A. Donald (22/4/2021).

2.2.8 Area 8: Central Southwest

- total area covered of 23,607 m² (systematic survey)
- survey focused on the inspection of 'Lake Tyrrell 1' (VAHR 7427-0102) and the surrounding area on the western shoreline
- includes a section of Lake Tyrrell Road/4WD track

Landforms

Part of Area 8 consists of an undulating sandy terrace with hummocks on its east and south sides, and a relatively small claypan-like depression. This is the location of 'Lake Tyrrell 1' (VAHR 7427-0102). This landform extends out into the lake past the shoreline. Gentle to moderate hillslopes rise from the terrace on the north and west (Photograph 90).

Vegetation

The vegetation cover is typical of Mallee scrub, with low chenopod shrubs and grasses, and scattered Mallee eucalypts (none bear cultural scars) (Photograph 91). Broombush (*Melaleuca uncinata*), Weeping Pittosporum/Gumbi Gumbi (*Pittosporum angustifolium*), and a type of Feather or Spear Grass (possibly *Austrostipa* sp.) were observed on the terrace. A small cluster of invasive Prickly Pear is on the private property boundary.

Ground surface visibility (GSV)

Across most of the terrace the ground cover is generally thick (grasses and low shrubs) and GSV is low ($\leq 25\%$ but commonly ca. 10%) (Photograph 91). Where vegetation is sparse or absent—mainly along the 4WD vehicle track, small scalds, and across the large eroded and exposed areas on the terrace (see below)—GSV was excellent (100%) (Photograph 92).

Disturbance

Ground conditions vary across Area 8. The vegetated areas of the terrace and hillslope south of the terrace are in fair to good condition and appear stable. A currently-occupied emu's nest was observed





in a vegetated area at the northeast edge of the terrace. However, disturbance in some portions includes:

- vehicle use/wind and water erosion—severe impacts along both sides of the main 4WD track (ca. 3-4 m wide) on the terrace (e.g. gullies, large deflated zones; Photograph 93, Photograph 95); loss of topsoil/landform (exposing basal clay) in the track footprint between ca. 500 mm up to 1.1 m depth (Photograph 94); a scald within an overgrown vehicle track (west terrace); large eroded area associated with vehicle track (south side of the terrace); loss of topsoil on hummocks exposing roots of larger vegetation (Photograph 93); deflation and vehicle tracks on clay pan (Photograph 92); off-road vehicle use near hummocks (vehicle turnaround) has caused loss of vegetation
- rabbit activity—burrows and diggings (e.g. on along the main 4WD track, Photograph 96)
- warren ripping—several parallel furrows in the northern part of the terrace possibly represent ripping of rabbit burrows (or possibly vegetation removal), and
- litter—dumped rubbish on the lake edge (numerous tyres, scrap metals and fencing materials) and terrace (tyres, textiles, aluminium can tabs in small campfire) (Photograph 97, Photograph 98).

Vehicle use appears to have been the catalyst of **severe erosion** on the terrace, which has resulted in substantial loss of vegetation and landmass, and has exposed Aboriginal cultural heritage material in a number of areas.

Aboriginal cultural heritage - VAHR places and components

Aboriginal cultural heritage at 'Lake Tyrrell 1' (VAHR 7427-0102) was observed over an area of least 7,000 m²—across eroded parts of the terrace and adjacent areas, on eroded zones along the vehicle track, among the hummocks, and spread across the claypan (Photograph 92, Photograph 101).

Eighty-five stone artefacts were observed, 62 of which were recorded in detail owing to time constraints (Figure 22).



Figure 22: Survey Area 8, flaked stone artefacts at VAHR 7427-0102.





The majority of these artefacts are made of **silcrete** (n=69, 81%), with smaller numbers of quartz flakes and fragments (n=16, 19%). Around half of the silcrete artefacts are flakes or flake fragments (51%), with angular fragments (23%), three cores (including a microblade core), and one tool (Photograph 99, Photograph 100).

Like Area 7, a significant proportion of the silcrete artefacts (49%) have remnants of the weathered outer skin (or 'cortex') of the source material on their surfaces. This suggests that Aboriginal people were preparing stone material on-site to be made into tools, and possibly even that the silcrete was sourced from the vicinity.

A possible 'gastrolith' (a stomach or gizzard stone that helps to grind and digest plant fibres, e.g. emus) was also seen among the artefact scatter (Photograph 102). This could possibly have come from an animal that was prepared/cooked at the place in the past.

The remains of a probable **hearth** were also located, which is rapidly eroding from the upper zone of one of the hummocks (Photograph 103). It contains dense clumps of fire-hardened (red to black) sand and clay, with some clumps scattered up to around 5 m from the main cluster.

Given the **severe degradation** of the terrace landform and deflation in adjacent, heavily eroded areas, it is probable that most, if not all, of the artefacts observed are not in their original context/location.

The nature and condition of 'Lake Tyrrell 1' (VAHR 7427-0102) place appears to be similar in most respects to that of two previous recordings/inspections, however, the hearth was not previously recorded in detail.



Photograph 90: Survey Area 8, northern approach of vehicle track to the terrace. Facing south. P. Kucera (22/4/2021).





Photograph 91: Survey Area 8, view from hillslope overlooking the central terrace towards lake, showing vegetation cover. NB: shallow troughs/furrows also visible (centre left to bottom right). Facing east. P. Kucera (22/4/2021).



Photograph 92: Survey Area 8, view across the claypan-like depression on the east side of the terrace, showing locations of stone artefacts and recent tyre marks (centre right). Facing east. P. Kucera (22/4/2021).





Photograph 93: Survey Area 8, view of the hummocks (centre right) on the southeast side of the terrace (centre left), showing the vehicle track and surrounding degraded areas. Facing northeast. P. Kucera (22/4/2021).



Photograph 94: Survey Area 8, view along the main vehicle track through the centre of the terrace, demonstrating the significant loss of landform. Facing southeast. I. Bilbao Malave (22/4/2021).





Photograph 95: Survey Area 8, southwest end of the terrace where the former vehicle track continues, showing vegetation loss and significant damage to the landform. Facing northwest. I. Bilbao Malave (22/4/2021).



Photograph 96: Survey Area 8, rabbit digging activity along the main vehicle track. Facing northeast. I. Bilbao Malave (22/4/2021).



Photograph 97: Survey Area 8, rubbish piled on the lake edge, north of the terrace. Facing north. A. Donald (22/4/2021).



Photograph 98: Survey Area 8, dumped rubbish on the terrace. Facing north. A. Donald (22/4/2021).



Photograph 99: Survey Area 8, a silcrete flake at VAHR 7427-0102. A. Donald (22/4/2021).



Photograph 100: Survey Area 8, a silcrete core at VAHR 7427-0102. M. Kennedy (22/4/2021).





Photograph 101: Survey Area 8, view of artefact distribution beside the vehicle track at the southern end of the terrace in the vicinity of the hummocks, showing the erosional impacts (centre left in particular) to landform. Facing southwest. I. Bilbao Malave (22/4/2021).



Photograph 102: Survey Area 8, possible gastrolith at VAHR 7427-0102. I. Bilbao Malave (22/4/2021).



Photograph 103: Survey Area 8, remnants of a hearth eroding from a hummock at VAHR 7427-0102. Facing south. I. Bilbao Malave (22/4/2021).



2.3 SURVEY RESULTS SUMMARY

Key points:

- **Eight survey areas** covered by foot
- 10 previously registered Aboriginal places inspected
- 26 new place components registered (artefact scatters, isolated artefacts, hearths), comprising 18 new registrations for Direl place and an additional 8 newly identified and documented components associated with 4 of the previously registered places
- The results of this survey, as well as previous investigations, indicate that artefact scatters and hearth remains (e.g. clay balls and stone heat retainers) are the most likely types of cultural heritage material to be found at Direl, with a high likelihood of undocumented Ancestral Remains
- 462 flaked stone and glass artefacts, 11 earth features (i.e. hearths), numerous heat retainer fragments (i.e. clay balls), an otolith, and a gastrolith were recorded across these places
- Stone artefacts mostly consist of flaking debris of silcrete and quartz, however, tool types such as microliths, and a hammerstone, grindstone, and a scraper were observed, as well as microblade cores, and less frequent stone material types such as quartzite, chert, basalt and sandstone
- The presence of possible, utilised (i.e. flaked and/or retouched) historic glass artefacts (i.e. Area 2, Area 5) are suggestive of a phase of Aboriginal occupation at Direl during the contact period
- Moderate to severe levels of erosion—exposing Aboriginal cultural heritage and degrading landforms—were observed in multiple survey areas (e.g. Area 7)
- In many areas erosion is being intensified by vehicle use, in particular the use of the Mally Rally track (and associated areas) and this is impacting Aboriginal cultural heritage and landforms (e.g. Area 1, where three hearths are eroding out of the footprint of the Mallee Rally Track; Area 2, where cultural material is eroding within or close to the track; Area 4, where the tracks bisects the terrace; Area 5, where a significantly larger amount of material has been exposed since first recording; Area 6, wide footprint of main track and a secondary track, vegetation loss, erosion gully; Area 8, wide track footprint, track bisects landform, off-track vehicle activity)
- Severe erosion is also being exacerbated by modern landuse practices (i.e. clearing, ploughing and cropping) in Area 3, on the eastern side of Direl on the lunette dune
- Historical activities (possibly salt harvesting) may have contributed to the degradation of landforms and cultural heritage in Area 5
- Erosion on the lunette in Area 3 is threatening a significant Aboriginal place (AS 4, EF 4-5) of high archaeological significance—given the range and quantity of cultural heritage material present—and high cultural and spiritual value to the Traditional Owners. Further detailed survey and investigation should be carried out here
- Brief inspections between Survey areas 4, 5 and 6 found that the condition of the landscape is generally poor (e.g. very narrow tracts of vegetated land along the lake edge; vehicle tracks





traversing the fringe of the lakebed; areas with vegetation loss and severe erosion were common). Dumped rubbish (some possibly historical) was also seen

- Some portions of the survey areas appear stable and well vegetated (e.g. Area 5, areas on the low-lying promontory; Area 6, upper and mid-hillslopes; Area 7, hillslope and parts of the terrace; Area 8, western hillslope, and northern and central terrace)
- Invasive animals (e.g. rabbits) are causing moderate to high impacts in some areas (e.g. Area 1, Area 2, Area 4, Area 5, Area 6, Area 8)
- Rubbish dumping is causing low to moderate impacts in some areas (e.g. Area 3, Area 4, Area 7, Area 8)

The **Aboriginal cultural heritage at Direl** suggests repeated small-scale, short-term episodes (possibly seasonal and/or transient) of past Aboriginal occupation and activity within the Direl landscape.

This pattern of usage echoes early **historical descriptions** of Aboriginal occupation at Direl.

The survey results demonstrate an association between past Aboriginal activity and **specific landscape features**—such as lunettes, terraces, ridges, and promontories—within Direl. These same landscape features are evidently **fragile**, and have been damaged to varying degrees by a combination of erosion, invasive animals, and modern activities. Further degradation of the landscape not only puts cultural heritage material and features at risk, but also risks great harm to the habitats and ecosystems of Direl.

These material remains and natural landscape features are closely tied to **intangible values** of the Traditional Owners of Direl, including sense of place, beliefs, astronomical knowledge and Creation Stories. Equally, the condition of the landscape is inextricably linked to the health of Country.

From a **heritage management** perspective, it is necessary to consider the implications of both tangible and non-material aspects. The material culture described in this section gives only one part of the significance of Direl, with intangible values (e.g. spiritual and aesthetic) forming a substantial part of the overall significance of Direl. The following section (Section 3) provides a significance assessment of Direl incorporating these considerations.



3 ASSESSING SIGNIFICANCE

This section describes and assesses the **cultural significance of Direl** (i.e. the cultural values of the place) using frameworks outlined in the:

- Aboriginal Heritage Act 2006
- Australia ICOMOS Burra Charter (2013), and the
- supplementary Practice Note: Understanding and Assessing Cultural Significance (2013).

It includes:

- criteria for assessing cultural significance
- a *statement of cultural significance*, informed by:
 - the cultural values identified by Traditional Owners
 - o field survey
 - o background research, and
- an assessment of cultural significance for Direl as a whole (VAHR 7427-0187).

3.1 CRITERIA FOR ASSESSING CULTURAL SIGNIFICANCE

While the significance of Direl should be considered as a whole, the *statement of cultural significance* is broken down into **seven interrelated categories** of **significance**: archaeological, anthropological, contemporary, historical, scientific, social, and spiritual.

The combination of these factors demonstrates the significance of Direl locally, nationally, and globally.

3.2 TRADITIONAL OWNER VALUES

The key cultural values to Traditional Owners (Table 2) were identified through consultation, fieldwork, and background research. These values reflect the importance of Direl to the Traditional Owners and outline their aspirations for the ongoing management of Direl as a whole.

Key Value	Specific values
Material cultural heritage values	 The variety and high number of cultural heritage places and components within Direl The importance of protecting material cultural heritage at Direl from harm Recognition that Direl is a whole cultural landscape, rather than a collection of individual cultural places Specific locations and landscape features (e.g. the eastern lunette dunes; Box Gully; western slopes and terraces; promontories etc.) are places of high cultural and archaeological significance Understanding that material culture is likely to exist in areas that have not been surveyed (e.g. the entire eastern lunette system) The importance of protecting cultural heritage should be communicated to other stakeholders (e.g. landowners)
Intangible cultural heritage values	 Boorong astronomical knowledge associated with Direl is well documented and was raised by Elders and knowledge holders as having high significance Understanding that Direl was an important meeting place for multiple Traditional Owner groups

Table 2: Key values identified by Traditional Owners for Direl.



Key Value	Specific values
	• Understanding that multiple group affiliations and shared responsibility require collaboration between all Traditional Owner groups when making decisions about the management of the place
Environmental	Protecting and regenerating the natural environment
Values	Healthy Country helps protect heritage and is intrinsically linked to cultural values
	• Maintaining a healthy environment is beneficial to the wider community (e.g tourism operators, local residents)
	• Accessibility of Direl to Traditional Owners, i.e. maintaining and increasing access to the place
Aesthetic Values	 Direl is a place of unique natural beauty. This value is shared with the wider community (e.g. tourism operators, tourists, and local residents) the aesthetic value is linked directly to cultural, spiritual, and environmental values

3.3 STATEMENT OF CULTURAL SIGNIFICANCE

Direl is regarded as a **highly significant cultural place** by multiple Traditional Owner groups, including Wemba Wemba, Weki Weki, Tati Tati, Wadi Wadi, Latji Latji, Wotjobaluk and Wergaia peoples. It is an *'intrinsic part of their cultural and spiritual identity and forms an ongoing connection to their ancestors and past traditions'* (Cooper et al. 2019: 148-152).

Direl is also recognised as a **highly significant** and important place by **non-Indigenous communities**, such as public interest groups, academics, and local residents, for its aesthetic, scientific, cultural and social values.

The cultural significance of Direl has been previously documented in a *Significance Statement* produced in consultation with BGLCAC as part of the registration of Direl Cultural Place (VAHR 7427-0187) (Cooper et al. 2019). This statement is included in Appendix 1. Direl and the cultural heritage Places associated with it are highly significant, and it is essential that this Place receives protection from destructive processes occurring in the area.

3.3.1 Archaeological significance

Direl is a **highly significant archaeological place**. While the amount of structured archaeological investigation that has been undertaken at Direl is relatively small, studies have yielded significant results and demonstrate the presence of cultural heritage materials throughout Direl.

Length of occupation & adaptation

Excavations at **Box Gully** have provided the **first evidence** for Aboriginal occupation of the mainland south of the Murray River **prior to the height of the last Ice Age** (Last Glacial Maximum [LGM]), between around 26,600 to 32,000 years ago (Richards and Webber 2004; Richards et al. 2007).

Direl is also highly significant in demonstrating **human adaptation** to a harsh environment (and diminished resources) during periods of extreme climatic stress (Richards et al. 2007).

This makes Direl of comparable archaeological significance to other inland lakes in neighbouring regions, including Lake Mungo and Lake Tandou.





Variety and abundance of Aboriginal places

Direl has a **wide range** and **high number** of archaeological place types. Prior to the CMP survey these included: artefact scatters (n=85), low density artefact distributions (LDADs) (n=19), earth features (n=52), and a single scarred tree (n=1). Concentrations of places occur around the lake (n=89), in the vicinity of Box Gully (The Soaks) (n=59), and in the eastern lunettes (n=9).

Now registered as an overarching Aboriginal cultural place (VAHR 7427-0187) (Cooper et al. 2019), Direl is considered a significant **Aboriginal cultural heritage landscape**, and is of great importance to Traditional Owners.

Aboriginal cultural heritage components of Direl recorded during the **CMP survey** (Areas 1, 2, 3, 5 and 6) consist mostly of scatters of stone (and glass) artefacts (n=3), isolated artefacts (n=10), and earth features (hearths) (n=5). These are located across **various landforms**—slopes, low sandy rises and ridges, lunette dune—and many are situated either along or in close proximity to vehicle tracks.

Field **survey** showed the **high archaeological sensitivity** of the previously unsurveyed **eastern lunette system**, which has a wide variety and large amount of cultural heritage materials, including hearths, flaked stone artefacts, grindstones, hammerstones and imported stone materials. The survey also confirmed the presence of **Ancestral Remains** at Direl, the first observed here to date.

Field survey for the CMP confirmed the:

- **high likelihood** of Aboriginal cultural material, including Aboriginal Ancestral Remains, in **unsurveyed areas** around the lake, especially within the eastern lunette system
- **high archaeological sensitivity of landforms** (e.g. terraces and peninsulas) on the western side of the lake, and the likelihood that much further material is present, and the
- **fragility** of these landforms where previously recorded places occur.

3.3.2 Anthropological significance

Early historic accounts of Indigenous connections to Direl

Several historical records describe Aboriginal life in the area at the time of early contact between Indigenous and non-indigenous peoples, in particular how they adapted to **life in a semi-arid region** (see Secton 1.8).

As a **meeting place** for several Traditional Owner groups, Direl is important for understanding the complexity of Aboriginal language groups, clan and tribal structures, interactions, movement, and exchange in the greater Mallee region (see Clark 1990; Hercus 1986).

The significant information about **Boorong astronomy**, documented by Stanbridge (1861, 1857), also gives Direl high anthropological significance.

Subsequent research has established links between Stanbridge's records of particular animal-shaped constellations and the on-the-ground, seasonal occurrences of Mallee animal behaviours (Morieson 1966; Hamacher 2011).

3.3.3 Contemporary significance

Contemporary Indigenous significance

The contemporary significance of Direl to **Traditional Owners** derives from the combination of its social, spiritual, scientific, archaeological, anthropological, and historical significance. Direl continues





to be an important place for Aboriginal people today and is known for its importance as a **meeting place** for multiple Traditional Owner groups. It is also highly significant as a place of traditional **astronomical knowledge**.

Contemporary environmental significance

Traditional Owners also emphasise the importance of **healthy Country** and a well-managed environment as a key value (Table 2). Traditional Owners understand that a healthy Country is crucial for protecting heritage and is intrinsically linked to cultural and overall aesthetic values at Direl (see e.g. BGLCAC 2017; FPMMAC 2020).

The landforms and **water systems** of Direl have high environmental significance. Lake Tyrrell is the largest salt lake in Victoria; and the lunette dunes on the eastern side of the lake provide one of the few high points in the generally flat Mallee region (LCC 1989: 59). The Land Conservation Council (1989: 59) describes the scientific value of Lake Tyrrell as being of international significance, particularly the groundwater system.

The **flora** and **fauna** of Direl represent important environmental values (LCC 1989). While much has been lost, **small tracts of native vegetation** (and associated fauna) are retained, including Balmers Tank Reserve, Box Gully (The Soaks), some areas within private properties on the east, and along much of the lake shoreline.

These vegetated areas are home to several **bird species**, including the White-winged Fairy-wren, Rufous Fieldwren, Crimson and Orange chats, as well as **reptiles** such as the Lined Earless Dragon (*Tympanocryptis lineata*) and the Saltbush Morethia Skink (*Morethia adelaidensis*) (LCC 1989: 59). In 1989, the earless dragon population at Lake Tyrrell was one of only three known Victorian populations (LCC 1989: 59). Currently, the Lined Earless Dragon and the Saltbush Morethia Skink are both listed as 'Endangered' on the FFG Threatened List (DELWP 2021: 7).

During the field survey, it was observed that areas of native vegetation clearly provided important protection for Aboriginal cultural heritage material against erosion.

3.3.4 Historical significance

Indigenous historical significance

The Traditional Owners also have a strong **historical connection** with Direl that comes from interactions between Traditional Owners and early settlers in the region. For example, W.E. Stanbridge's extensive records from the mid-1800s provide rare insights into the way of life, knowledge and spirituality of the Boorong people in the post-contact period.

Both BGLCAC and FPMMAC have acknowledged that while the arrival of non-Aboriginal people in the Mallee was extremely disruptive to Aboriginal lifeways, their connection to Country has been continuous:

'The First Peoples of the Millewa-Mallee people have maintained continuous connection to our Traditional Country from the initial period of colonisation up to the present. European settlement disrupted traditional culture but it didn't sever the ties that the First Peoples of the Millewa-Mallee people and their descendants maintain with Country. We know our country and we will always return to it.' (FPMMAC 2020)





'The taking of lands by pastoralists brought rapid and devastating changes to Wotjobaluk Peoples. Our ancestors sought refuge at "friendly" pastoral runs, where a familiar sense of local-group life was maintained.' (BGLCAC 2017: 5)

Many Wotjobaluk Peoples were moved onto the Ebenezer mission from 1859 and Antwerp reserve from 1905, where traditional cultural practices were discouraged (BGLCAC 2017: 6). Despite this, **cultural traditions**—and **connections to Country**—were able to **persist**: *'Elders passed on their knowledge of Country and traditional cultural practices to younger generations'* (BGLCAC 2017: 6). Moving between mission reserves for work and to visit family, Wotjobaluk people were able to continue to use traditional **travel/trade/ceremonial routes** across Wergaia and Jadawadjali Country—from *Barringgi Gadyin* (Wimmera River) to *Direl*—and to maintain their cultural practices and fulfil their religious responsibilities (e.g. at important places and sacred sites) along these routes and at Direl itself (*Direl Significance Statement*, Cooper et al. 2019: 149-150). Some Wotjobaluk people also worked on the salt harvesting at Direl or had seasonal work there.

In 2005, BGLCAC/Wotjobaluk Peoples were the first Victorian Traditional Owner group to gain **Native Title Status** (Department of Justice and Community Safety 2020), their claim extending to the southwestern segment of Lake Tyrrell.

3.3.5 Scientific significance

The scientific value of Direl (VAHR 7427-0187) should be considered to be **very high** and of **State significance**, based on:

- its high archaeological significance (above; including Aboriginal occupation of the Victorian Mallee region during the Pleistocene)
- the documentation of highly significant cultural heritage areas during the fieldwork survey, and
- the high potential for further research.

The nature of Aboriginal occupation at Direl from around 26,600 years ago, extending through the LGM and into the Holocene period—when changes to rainfall and groundwater would have seen lake levels increase (Hesse et al. 2004)—is a significant area for future archaeological research.

Direl is also a place of high scientific significance to the broader academic community and interest groups, including: environmental scientists, ecologists, geologists, groundwater scientists and modern astronomers.

3.3.6 Social significance

Part of Direl's social significance comes from its **high aesthetic value**. With its large, ocean-like salt lake and lunette dunes rising above the flat Mallee landscape, Direl is a unique landscape and recognised both nationally and internationally for its outstanding natural beauty.

The **vistas** at Direl are transformed when there is water in the lake. The lake water turns pink owing to the red pigment produced by microscopic algae and reflections on the water surface 'mirror' the sky, day and night. This '**mirror**' effect has cultural significance for Traditional Owners (related to the *Boorong* people's knowledge of astronomy), and also attracts thousands of tourists to the lake each year.





Direl is a highly significant social place for both **Traditional Owners** and **non-Indigenous communities**, individuals and stakeholders. Separate to Indigenous heritage, there is also significance attributed to the place by the local non-Indigenous community. For example, the Mallee Rally, which has been held at Lake Tyrrell on an annual basis, has been a significant cultural event for the wider Sea Lake community since 1972.

It should be emphasised that to the Traditional Owners the criteria for assessing the cultural, spiritual and social significance are closely interconnected. The social significance of Direl to Traditional Owners can be linked directly to the cultural values and connections to Country, including astronomical knowledge and Creation Stories.

3.3.7 Spiritual significance

Direl is a place of very **high spiritual significance**, which is tied to **Creation Stories** and **ceremonies**. These Creation Stories are significant not only to Wotjobaluk Peoples, but also to Aboriginal people across Victoria, who also have spiritual links to these Stories:

The Creation Stories that reside in the stars and constellations over Direl have shaped and informed the social and cultural identity of the Wotjobaluk Peoples who continue to recount and pass on the knowledge of these stories from generation to generation ... Many of the Creation Stories ... have a direct connection to other spiritually and culturally significant Places throughout the region.

Direl is linked to all other Creation Stories in the region because it is the place where the Dreamtime events on earth transcended space and time and entered the cosmos. The relationship between the earth and the sky, place and people, time and space, was symbolically expressed through the ceremonies and rituals that were undertaken at Direl.

... The Dreamtime events are shown in the stars and constellations, which are also reflected in the earth; by standing in the right place at the right time of year at Direl, the cosmos and the Dreamtime are reflected all around you.

(Direl Significance Statement, Cooper et al. 2019: 148-149)

3.4 SIGNIFICANCE OF PLACES AND COMPONENTS AT DIREL

Prior to the field survey, there was a total of 116 Aboriginal cultural heritage places (made up of 159 components) registered within Direl (VAHR 7427-0187). A further 18 components were added to this place record and a further 8 components added to previously recorded place records as a result of the survey, bringing the total components to 185. Including Direl Aboriginal Cultural Place itself, the total number of places and place components relative to Direl is 186 (Table 3).

A **qualitative assessment** of each place/component was undertaken to determine the relative, overall significance of each place and component, using the criteria presented below.





Component type	Previously registered	Recorded during survey	Total
Artefact Scatter	85	13	98
Earth Feature	52	11	63
Low Density Artefact Distribution	19	2	21
Scarred Tree	1	0	1
Object collection	2	0	2
Aboriginal Cultural Place	1	0	1
Total	160	26	186

Table 3: Components within the Direl Place extent.

As the Ancestral Remains observed in Survey Area 3 were not recorded and have not yet been registered on the VAHR, they have not been included in this assessment. However, it must be stressed that Ancestral Remains are of the highest possible level of significance in terms of Aboriginal cultural heritage.

The **criteria** for assessing the overall significance of each place/component include the:

- **State of preservation/place condition**—the quality of a place and the amount of disturbance or degradation that may have occurred (e.g. natural erosion or related to human activity)
- **Place structure**—the physical contents and make-up of a place/component, e.g. number/type of artefacts, contents of a hearth feature, relationship to particular landforms
- Association with recorded events or persons—the relationship of a place to known persons or events, its social values and significance (e.g. traditional beliefs and practices) to a particular group of people
- *Importance to Aboriginal people*—All places/components are generally considered to be of high importance to Aboriginal people
- **Frequency of similar places**—how common a place/component is compared with other site types ('low', 'moderate' or 'high'; e.g. artefact scatters are 'high'; hearths are 'moderate'; LDADs, scarred trees, earth mounds and soil deposits are 'low' to 'moderate')
- **Potential to provide significant information**—the amount of scientific and cultural information that could be provided by the component ('low', 'moderate' or 'high'), and
- **Overall level of significance**—determined by assessing the values of each of these categories to produce an overall assessment of significance per place/component ('low', 'moderate' or 'high').

Places/components have been given overall significance ratings of:

- high—(n=114), e.g. scarred trees and Aboriginal Ancestral Remains (Burials), because of their high cultural significance to Aboriginal people, low frequency, and high research potential. Many artefact scatters with multiple and varied components (e.g. with hearths) also have 'high' overall significance.
- **moderate**—(n=18), e.g. some artefact scatters, based on levels of preservation (poor, fair and good), potential to provide significant information, and importance to Aboriginal people, and
- **low**—(n=54), e.g. isolated artefacts and LDADs, given their generally low potential to provide significant information.





Nonetheless, it is important to note that *all* components within Direl are significant and valuable, as they make up the *Direl cultural landscape* as a whole.

3.5 LIMITATIONS OF SIGNIFICANCE ASSESSMENT

The assessment of significance presented here is limited by the scope of the CMP and the relatively small amount of previous archaeological research undertaken at Direl, compared to similar cultural landscapes, such as Lake Mungo.

A large number **previously registered places** were not able to be inspected due to time constraints and access restrictions. As a result, many places/components within Direl could only be assessed based on the (sometimes scant) information available in existing records.

In terms of **archaeological investigation** within Direl, large portions of the lake shoreline and lunette dunes remain **unsurveyed**, and there has been very **limited sub-surface testing/excavation**. Consequently, the archaeology of some landforms—such as the eastern lunettes and western terraces—has not yet been thoroughly assessed, and little is understood about the complexity of artefact scatters and hearths in terms of the nature and timing of the occupation they represent. It is highly likely that there are many more *unrecorded* Aboriginal cultural heritage places in the area, which further increases the overall significance of the Place.





4 STAKEHOLDERS, ISSUES, THREATS AND STRATEGIES

This section outlines the:

- range of different interested parties or '**stakeholders**' at Direl—each with different responsibilities, interests, roles, activities and land uses
- issues and threats that different activities pose to the cultural and heritage values of Direl
- aspirations of the Traditional Owners and the broader community, and
- the suggested ways forward for the **ongoing management** of Direl.

4.1 CURRENT MANAGEMENT OF DIREL

The management of Direl is currently undertaken by a range of stakeholders with differing interests (e.g. cultural, commercial, recreational), and roles (e.g. legal, administrative) in the area.

Responsibility for the care and maintenance of Direl is divided between (Table 4; Maps 3-5):

- private landowners
- Victorian State Government agencies (e.g. Parks Victoria, DELWP)
- Local Government Authorities (Buloke Shire Council, Swan Hill Rural City Council)
- Traditional Owner and RAP groups
- Cheetham Salt
- Mallee Catchment Management Authority (Mallee CMA)
- private entities or individuals (e.g. Sea Lake Off-Road Club, Advance Sea Lake Inc.), and
- tourism operators.

4.1.1 Parks Victoria

Most of Lake Tyrrell is a designated **Wildlife Reserve**, managed by Parks Victoria (Map 4). This includes around two thirds of the lake body itself, as well as areas along the northeast and eastern shoreline, including Box Gully.

There is currently no designated ranger for Lake Tyrrell or managed infrastructure available for visitors (e.g. campgrounds, toilet facilities, running water or bins).

4.1.2 Mallee Catchment Management Authority (MCMA)

Direl falls within the boundaries of the area managed by the Mallee Catchment Management Authority (MCMA).

The MCMA is the peak body for the delivery of **natural resource programs** in the Mallee region. It works in partnerships with government agencies, local organisations (e.g. Landcare), and community groups to manage waterways, floodplains, biodiversity (e.g. vegetation restoration and threatened species recovery), land and soil health, and salinity. Its responsibilities also involve coordinating funding for community involvement and education in natural resource management programs, as well as 'cultural heritage protection' (MCMA 2020).





Stakeholders	Responsibilities
Barengi Gadjin Land Council Aboriginal Corporation (BGLCAC)	Registered Aboriginal Party (RAP) for the southwest segment of Lake Tyrrell, made up of Traditional Owners with proven, inherited role to speak for Country and Culture within their RAP area. Decision makers for Cultural Heritage (and Intangible Heritage), incl. management plans, permit applications, and land management agreements (Map 3).
Traditional Owner Groups	Groups with ancestral and cultural connections to Direl, and interests in protecting the Direl cultural heritage landscape (incl. Wemba Wemba, Tati Tati, Weki Weki, Wadi Wadi, Latji Latji and First People of the Millewa Mallee Aboriginal Corporation [FPMMAC]).
Victorian State Government (Parks Victoria & DELWP)	Crown land designated as public access is managed by DELWP and Parks Victoria, Parks Victoria manages the largest area, covering much of the lake
	body, including parts of the northern and eastern shorelines, and Box Gully.
Cheetham Salt	Salt mining company. Works leases on the western shore. No immediate plans to expand beyond its current operations.
Sea Lake Off-Road Club	Organises the annual Mallee Rally, which has occurred within the same
(SLORC)	footprint over a period of 46 years. Leases an area on southeast of lake.
Private landowners	Private property makes up large areas on the eastern side of the lake. Many
(primarily farmland)	areas actively farmed and/or managed by the relevant landowners.
Buloke Shire Council (BSC)	Direl is located primarily within BSC (Map 5). Has sub-let an area from Cheetham Salt at the south of the lake for tourism purposes and contributed to the funding of new tourism infrastructure.
Swan Hill Rural City Council	The northern shore of Lake Tyrrell, including Box Gully, lies in SHRCC area
(SHRCC)	(Map 5). SHRCC has minimal involvement in the management of Lake Tyrrell.
Mallee Catchment	Peak body for the delivery of natural resource programs in the Victorian
Management Authority	Mallee. Has active invasive species (weeds and terrestrial pests) control
(Mallee CMA)	programs at Lake Tyrrell.
Advance Sea Lake Inc.	No mandated responsibilities. Involved in supporting tourism and advocating for better infrastructure at Lake Tyrrell, the Mallee Rally event, and participates in the management of the area reserved for tourism (under the auspices of BSC (Map 4). Previously, it assisted with bollard type fencing installation at the southern end of the lake.
Sea Lake Landcare	No mandated responsibilities. Oversees the management of environmental conservation projects at Lake Tyrrell and surrounds.

The MCMA is committed to **engagement with Traditional Owner groups**, Aboriginal communities and organisations in the Mallee Region—in decision making, planning and the delivery of land and water management—as outlined in its *Innovate Reconciliation Action Plan* (RAP) *September 2017 – September 2019*, and its renewed *Mallee Indigenous Participation Plan 2020–2023* (the Mallee IPP) (MCMA 2018, 2021).

The MCMA's *Mallee Waterway Strategy 2014–22* (MCMA 2014) identifies the following '**values**' of Lake Tyrrell:

'Significant EVCs, Significant Flora Terrestrial, Significant Flora Wetland, Drought Refuges, Important Bird Habitats, Flagship Species, Significant Reptiles Riparian, Wetland Vegetation Condition, Extractive Industry.' (MCMA 2014: 95)





Map 3: Map depicting the BGLCAC RAP area and boundary in relation to Lake Tyrrell and Direl place.





Map 4: Map depicting land management and tenure areas in relation to Direl place.





Map 5: Map depicting the LGA boundaries in relation to Direl place.





'Invasive Fauna (Terrestrial), Degraded Buffer, Reduced Vegetation Width, Degraded Water Quality.' (MCMA 2014: 95)

One of the key management targets for Lake Tyrell relates to the management of its cultural heritage:

'To increase the number of Cultural Heritage sites associated with priority waterways which are captured within registered management plans by 2022.' (MCMA 2014: 95)

In collaboration with local landholders, Sea Lake Landcare and other stakeholders, the MCMA has achieved a number of successful outcomes at Lake Tyrrell and Tyrell Creek, including:

- control of invasive plants and animals
- revegetation to EVC standards
- protection of remnant vegetation
- maintaining and establishing infrastructure (fencing, tracks etc.), and
- cultural heritage assessments and engagement events (MCMA 2006: 3, 2014: 96).

The MCMA has also been working with multiple local partners on '*The Tyrrell Project: Ancient Landscapes, New Connections*', which ties in with the Victorian Government's 'Our Catchments, Our Communities' Initiative (DELWP 2019). The aim of this project is to improve environments and habitats through revegetation, weed control, and pest animal control programs, as well as improve recreational facilities at catchment locations (DELWP 2019).

4.1.3 Sea Lake Off-Road Club

The Sea Lake Off-Road Club (SLORC) has organised the annual **Mallee Rally** event (excluding 2019–2021) on the Queen's Birthday long weekend (in June) since 1973. SLORC currently holds the **lease** over a portion of the southeast of the lake, which includes the Mallee Rally staging area (Map 4).

The SLORC manages parts of Direl in an unofficial capacity, primarily related to maintaining the 85 km long Mallee Rally Track (Map 6) and associated access tracks, and the leased area.

This leased area is:

- used for the car muster and acts as the starting and finishing point for the race
- contains the greatest amount of informal, temporary infrastructure related to the event (e.g. barriers made from tyres, water drums and hay bales, marquees, portable toilets, barbeques, and
- has the highest number of tracks.

The majority of Mallee Rally spectators gather in this location as there is a dune that provides a natural, elevated viewing area. Besides fencing, no permanent structures are set up in the leased area for the race or otherwise (G. Bailey 2019, pers. comm.).

Members of the community, especially those involved with SLORC, feel as though they have been acting as the unofficial land managers for parts of the lake (G. Bailey 2019, pers. comm.), as there is no active management by Parks Victoria.





Map 6: Map depicting route of the Mallee Rally in 2018 (i.e. Mallee Rally Track), and location of the staging area.



4.1.4 Cheetham Salt

Cheetham Salt Limited is Australia's largest producer and refiner of solar-evaporated salt products.

It holds **leases** over large areas of the western and southern parts of Lake Tyrrell (Map 4). Some areas of the Cheetham Salt lease are subleased to farmers for grazing (R. Guymer 2019, pers. comm.). Cheetham Salt is currently not planning to expand its operations.

The importance of a stable environment is also recognised by Cheetham Salt, which is currently undertaking some saltbush revegetation programs within their lease (R. Guymer 2019, pers. comm.).

4.1.5 Advance Sea Lake Inc.

Formed in 2003, Advance Sea Lake Inc. acts primarily to represent the interests of the Sea Lake community. It supports and promotes **community initiatives** both in and around Sea Lake. The group supported the preparation of CHMP 15200, supports the Mallee Rally event, and has expressed ongoing commitment to protecting and conserving the lake (J. Stacey 2019, pers. comm.).

Advance Sea Lake has a vested interest in Lake Tyrrell, relating to **tourism** in particular, and has been advocating for proper infrastructure to cater for the increasing number of tourists (J. Stacey 2019, pers. comm.). Although not mandated to, it plays an active role in the management of the tourism reserve on the southern shoreline (see Map 4; see also Cooper et al. 2019: 13). The group acquired funding for the installation of bollard type fencing in the tourist reserve to restrict vehicle access to the lake, however, it was not completed (J. Stacey 2019, pers. comm.).

4.1.6 Sea Lake Landcare

The Sea Lake Landcare group formed in 1992 as a result of a fencing project along Tyrrell Creek. Since that time, the group has been involved in other projects aimed at improving the local environment, with its main focus on the issues of **weeds** and **rabbits**. More recently its focus has been on the promotion and implementation of **sustainable farming methods** and no-till best practice. The group has the widespread support of the local agricultural community (Victorian Landcare Gateway 2021).

4.2 LEGAL OBLIGATIONS FOR CULTURAL HERITAGE AND THE ENVIRONMENT

4.2.1 Legislation

Commonwealth legislation

• Environmental Protection and Biodiversity Conservation Act 1999 – Commonwealth Government

Direl is not on the Commonwealth Heritage List or the National Heritage List (under the EPBC Act). Therefore, there are currently **no legal obligations** for land managers arising from Commonwealth legislation regarding **cultural heritage** management.

State legislation

The following **Victorian (State) legislation** protects different aspects of Direl and affects management responsibilities:

• Aboriginal Heritage Act 2006 (Aboriginal cultural heritage)





- *Heritage Act 2017* (historical heritage places, sites, or objects)
- Water Act 1989 (management of water resources)
- Water Industry Act 1994 (regulations for water authorities and uses of resources)
- *Conservation, Forests and Lands Act 1987* (Co-Operative Management Agreement between Traditional Owners and the State of Victoria)
- Flora and Fauna Guarantee Act 1988 and Flora and Fauna Guarantee Amendment Act 2019 (biodiversity, threatened species and communities)
- *Planning and Environment Act 1987* (Planning Overlays, Buloke Shire Council—e.g. areas and places of scientific, aesthetic, architectural or historic interest, or of special cultural value)
- Coroners Act 2008 (Ancestral Remains)

Traditional Owner Law and Custom

The BGLCAC's *Growing What is Good Country Plan* (2017) includes goals and strategies for the management of Wotjobaluk Country (managed by BGLCAC).

The plan notes the intrinsic **connection between Country and people**: *'it is important that we cherish and nurture all aspects of our lands, water and heritage in order to preserve the strength and resilience of our peoples'* (BGLCAC 2017: 1). One of the plan's key goals is *'Healthy Wotjobaluk Country'*:

'[Country] links us to our ancestors and spirits and it is the foundation of our future. If Country is treated with respect and care, and we can act on our responsibility for Country, then Wotjobaluk Country will continue to provide for us.' (BGLCAC 2017: 11)

The obligation to care for Country stems from the time of Creation:

'Bunjil the creator, made the land, waterholes, animals and plants and gave Wotjobaluk Peoples the responsibility to look after our Country and culture and keep it healthy and strong ... It is vitally important that we continue our traditional practices and uses of land, waters and living resources.' (BGLCAC 2017: 25)

Similarly, FPMMAC note the connection between caring for country and connecting with Ancestors:

'As Traditional Owners, we continue to care for and to have responsibility to care for cultural places across this country, just like our ancestors before us. We take these responsibilities and our obligations very seriously.' (FPMMAC 2020)

Other Traditional Owner groups—including Wadi Wadi, Latji Latji, Wemba Wemba, Tati Tati and Weki Weki—also maintain cultural connections with Direl, and continue to be involved in caring for Country.

Constraints

A constraint is a limitation or restriction stemming from the obligations outlined above. Constraints related explicitly to **cultural heritage** at Direl affect the management and administration of certain activities that may affect Aboriginal cultural heritage or significance, as per the appropriate legislation.

Activities that may lead to constraints relating to Aboriginal cultural heritage include:

1. Agricultural land-uses—e.g. cropping, rabbit ripping, related erosion



- 2. Informal recreational uses—e.g. off-road vehicles (dirt bikes, 4x4 vehicles), camping, picnicking
- 3. Unregulated tourist access—e.g. damage caused by bogging of vehicles, vegetation trampling, erosion, unauthorised access to private property, and lack of cultural awareness
- 4. Informal and/or unauthorised access to the lake—e.g. from private property, primarily by tourists
- 5. Management of invasive plant and animal species, and
- 6. Implementation and management of revegetation programs.

4.3 ASPIRATIONS OF TRADITIONAL OWNER GROUPS AND THE BROADER COMMUNITY

4.3.1 Traditional Owners (TOs, Non-RAP)

Several Traditional Owner groups and organisations that share ancestral and cultural connections to, and interests in, Direl were consulted for the CMP, including Wemba Wemba, Tati Tati, Weki Weki, Wadi Wadi, Latji Latji and FPMMAC.

While specific **aspirations** for the management of Direl varied between TO groups, key themes were:

- concern for the health of Country
- the revegetation of degraded landforms to slow erosion and protect Aboriginal cultural heritage places, and
- the inappropriateness and destructiveness of the Mallee Rally.

4.3.2 Barengi Gadjin Land Council Aboriginal Corporation (BGLCAC) (TO, RAP)

In its *Growing What is Good Country* plan, BGLCAC identifies Lake Tyrrell as one of the reserves that is culturally significant to its community. The plan notes that segments of remnant vegetation at Lake Tyrrell demonstrate what the landscape may have looked like pre-contact, and that such landscapes promote biodiversity and healthy Country (BGLCAC 2017: 43).

4.3.3 Broader Community

The broader community was consulted for the CMP regarding their aspirations for Direl, including landowners and community groups:

- Members of the SLORC have expressed their strong aspiration to continue staging the Mallee Rally in the future
- One private landowner/leaseholder expressed their support for undertaking revegetation programs on their property, for the purpose of reducing erosion
- Local community groups, such as Advance Sea Lake Inc., aspire to increase tourism opportunities and preserve environmental assets through the development of new infrastructure at the lake (e.g. the Lake Tyrrell viewing platform).

4.4 USES OF DIREL

Key points:

 Lake Tyrell is used by a wide variety of groups and stakeholders (community groups, Traditional Owners, private landowners, private enterprise, recreational users, state government agencies, tourists)


- Direl is important to a lot of different people for different reasons
- Because of this Direl has many types or layers of significance (archaeological, anthropological, contemporary, historical, scientific, social and/or spiritual), which has wider implications for the management of its cultural heritage

This section summarises the primary land-use activities at Direl.

4.4.1 Farming and pastoral activity

Areas around the shoreline of Lake Tyrrell are currently used for pastoral (sheep grazing) and agricultural purposes (dryland cropping), especially within the eastern lunette system of survey Area 3.

The maintenance of fencing is poor in many places and the demarcation of Crown and private land is often unclear in portions of survey areas 1 and 2.

4.4.2 Salt mining

Cheetham Salt currently operates salt extraction works in parts of the western side of the lake (Map 4). Permanent processing and administrative facilities, salt stacks and vehicle access roads are located on the western shore, near Daytrap Corner.

The salt works and salt stacks are a popular tourist sight, with access managed by Cheetham Salt.

4.4.3 Recreation

- local and non-local visitors
- the Mallee Rally and biennial Lake Tyrrell Scenic Drive (Sea Lake Off-Road Club [SLORC])
- photographic and astronomical tours
- unguided visits to the Lake Tyrrell (including birdwatching)
- strong contemporary significance of Lake Tyrrell to the non-Indigenous community

Mallee Rally

Currently run and organised by SLORC, the Mallee Rally covers a roughly 85 km long circuit, which broadly follows the perimeter of Lake Tyrrell. Competitors aim to complete four or five laps of the track, running across various terrain, including grass, sand, salt and clay, and navigating various obstacles such as fences and trees (Sea Lake Mallee Rally n.d.; Figure 23). Prior to the rally itself, there are time trials and a 'dash for cash' race (Sea Lake Mallee Rally n.d.). The rally attracts entrants from both interstate and overseas (McLennan 1994: 263), with some estimates indicating it brings in \$100,000 to the local community annually (Sinnott 2019).

In addition to the Rally, SLORC runs a biennial scenic drive or 'trek' around Lake Tyrrell, in which visitors (primarily local) travel along the entire rally track in two buses and a convoy of up to twenty fourwheel drive vehicles (Figure 24). In 2010, the drive included: 'A very informative talk ... given by Jamie Pook about the local aboriginal [sic] and geological history of the area. Willie Hannah from the Department of Sustainability and Environment in Mildura spoke and entertained with his didgeridoo' (SLORC 2010).





Figure 23: Still image of off-road vehicle used in the Sea Lake Mallee Rally (Source: SLORC 2016). Photo credit unavailable.



Figure 24: Lake Tyrrell Scenic Drive (Source: SLORC 2010). Photo credit unavailable.

Tourism

Over the last decade, Lake Tyrrell has experienced a boom in tourism, which has led to an economic revival for Sea Lake (see e.g. the ABC *Landline* episode [Grindlay 23 July 2016] and an ABC News article [Grindlay and Douglas 2020]).

This boom was largely due to the sharing on Chinese social media of spectacular images of the sky (sunsets, sunrises and stars) reflected in Lake Tyrrell's mirror-like surface (Photograph 104). In a short period of time, Sea Lake has transformed from '*a* "ghost town" into an international tourism hot spot' (Grindlay and Douglas 2020).



Photograph 104: Natural beauty of Lake Tyrrell and reflective nature of water during sunset. Facing west. J. Theys (14/1/2020).





4.5 THREATS

This section outlines the current threats to the Direl cultural landscape and Aboriginal cultural heritage.

4.5.1 Erosion

- erosion is one of the most significant threats to cultural heritage at Direl
- wind and water erosion is widespread, documented in each of the eight survey areas
- it has been primarily triggered by the removal of vegetation and has resulted in the loss of topsoil and the degradation of landforms, exposing cultural heritage
- it is related to a number of activities: vehicle use (the Mallee Rally and general), agriculture, and salt harvesting

Significant wind and water erosion (including channels and 'blowouts') related to **vehicle tracks** most notably those used by the **Mallee Rally**—was observed in all areas surveyed. Continued use of the Mallee Rally track course (and variants) will intensify erosion.

Natural erosion of landforms (e.g. the western terraces, peninsula, promontory, parts of the eastern and western shorelines), if left unchecked, will also continue to expose cultural heritage, and erode features such as hearths.

Farming activities (cropping and grazing) on the eastern and southern sides of Direl, covering large parts of the lunette dune systems, have resulted in the **loss of topsoil**. They are a key threat to sensitive cultural heritage in Survey Area 3, exposing earth features (hearths) and stone artefacts. Some stone artefacts show signs of damage through wind abrasion (smoothing the artefact edges, cf. Carranza 2018).

4.5.2 Mallee Rally and vehicle access

- numerous Aboriginal cultural heritage places (including hearths and flaked stone artefacts) have been recorded within the track footprint and adjacent areas and are directly threatened
- intensity of track use
- substantial width of the track in some areas causing damage to landforms
- minimal barriers to off-track vehicle use
- additional damage caused by spectators

Significant **damage** caused by vehicles was observed during the CMP survey, including loss of topsoil, loss of vegetation, loss of landform, trampling, and exposure of cultural heritage materials within the footprint of the Mallee Rally Track and in adjacent areas.

The **intensity** of track use during the Mallee Rally, the large numbers of vehicles, high speeds and offroad potential, all exacerbate the damage to cultural heritage and the environment.

In some places the track is substantially wider than a single car (>10 m) and has caused damage to a range of **landforms**—the shoreline flat, terraces and sandy ridges, and the sandy lunette—sometimes stripping the topsoils down to the basal clay.

A previous archaeological consulting report identified the Mallee Rally as a **significant threat** to the conservation of Direl and recommended that:





'In particular, the event known as the "Mallee Rally" must be discontinued ... Since most of the rally appears to take place within the Crown Land boundary, Parks Victoria must take responsibility for consulting with the organisers to put a stop to the event. The impact of this event on archaeological sites [is also related to] ... informal camping and spectator activities (e.g. campfires, toilet pits).' (Edmonds 1997: 32)

There are minimal **barriers** in place (tyres, water containers and hay bales are present in some areas) to confine vehicles to the main rally track. Vehicles are known to come off the track (G. Bailey 2019, pers. comm.), which has the potential to cause significant harm to cultural heritage and flora and fauna in the surrounding areas. Temporary barriers also impact on the aethestic values of Direl.

Unregulated vehicle access (both motorbike and 4WD) is also posing a significant threat to values at Direl, for example, by driving onto the surface of the lake body.

In survey areas 1, 5, 6, and 8, former vehicle tracks showed signs of natural **revegetation**. This indicates that smaller, less used vehicle tracks around Lake Tyrrell may gradually revegetate naturally if unused.

Traditional Owners from all represented groups have consistently expressed strong concerns about the threats to, and impacts on, cultural heritage values from the Mallee Rally, as well as impacts to environmental and aesthetic values.

One Traditional Owner asked: 'would you run a race around Mungo, around Uluru, or Kakadu?'.

Traditional Owners unanimously agree that the rally is an **inappropriate activity** for Direl and should be immediately discontinued. Several have suggested that similar management strategies to those in place at Mungo be implemented at Direl (see Sections 5 and 6).

4.5.3 Farming

- grazing and cropping are having significant impacts on parts of Direl through erosion
- stock trampling threatens to expose and damage cultural heritage materials/features (e.g. stone artefacts, mounds, hearths)

The adverse affects of ploughing on the topsoil—creating opportunities for wind and water erosion and consequently on the preservation of Aboriginal cultural heritage materials, were observed in Survey Area 3 (see also Section 4.5.1, above).

It should be noted that the *Aboriginal Heritage Act 2006* (Section 25) provides for the continued use and enjoyment of the surface of the land by the entitled owner/occupier if an Aboriginal place or object is located there, provided that Aboriginal cultural heritage is not harmed (Section 27, 28).

However, the continued practice of farming in areas of known **cultural sensitivity**—as well as in delicate, remnant environments—should be reexamined.

4.5.4 Tourism

- unregulated tourist access to Direl (private property and Crown Land)
- damage to lake edge and body (trampling, vehicles)
- lack of infrastructure
- appropriate tourism

The recent boom in tourism has led to unprecedented numbers of visitors accessing Lake Tyrrell. In search of the best vantage points for scenic photography, tourists are regularly accessing **private property** as well as areas of **Wildlife Reserve** (see 4.1.1). This has led to substantial damage to





vegetation on the shoreline and areas within the lake (e.g. walking onto lake, cars getting bogged). Tourists are also posing beside commercial salt stacks, which carry a risk of collapse (Grindlay 24 March 2016).

The lack of **signage** and **infrastructure** (e.g. information boards, amenities) around Lake Tyrrell is causing tourists to be unsure of where to access the lake and causing more widespread littering and environmental damage. An innacurate Google Maps place marker has been noted as one of the reasons that tourists are led into inappropriate parts of the lake and lake body (J. Stacey pers. comm., 2019) (Figure 25).

Unregulated tourism is perceived as a significant threat to Lake Tyrrell by various stakeholders: Traditional Owners, farmers, Advance Sea Lake Inc., SLORC, and local tour operators. The damage caused by it was the catalyst for plans to install a viewing platform and car parking areas at the southern end of the lake, within the BGLCAC RAP area (Cooper et al. 2019).



Figure 25: The Google Maps pin marker for 'Lake Tyrrell' directs visitors to the lake body in the north (Source: Google Maps 2020).

With **increased publicity** of the area as a national and international tourist destination, the threats to Direl from tourism are likely to continue and possibly increase in the foreseeable future.

A possible future threat could be **light pollution** from future proposals for developments and/or infrastructure to cater for increased tourism around the lake or in nearby towns. Light pollution has the potential to impact upon one of the key intangible heritage values of Direl: the observation of astronomy.

Some Traditional Owners have expressed concern about the potential **appropriation of Aboriginal cultural knowledge** and **stories** by non-Indigenous tourism operators. They feel that stories should be told by appropriate knowledge holders, who have cultural and spiritual connections to the place. Linked to this are concerns about potential financial losses to Aboriginal communities who have been





excluded from such tourist enterprises. There are additional concerns that some tourists might be removing cultural material from the place (D. Kelly 2019, pers. comm.).

4.5.5 Salt mining

Cheetham Salt has indicated that if salt extraction is expanded in the future it will observe all correct practices in relation to the protection of the environment and cultural heritage (R. Guymer 2019, pers. comm.). It has a general awareness of the Aboriginal cultural heritage significance of Direl.

Areas within its mining lease around the main operational facility were not surveyed in the CMP. However, previous archaeological investigations have documented cultural heritage material here (see Long and Edmonds 1999; Edmonds 2004).

4.5.6 Pests and invasive species

While the ecosystem of Direl is diverse and supports certain rare, threatened, or endangered species (see section 3.3.3), invasive terrestrial pest species are also present. Rabbit burrows were observed in all surveyed areas, causing varying degrees of disturbance.

Animals that cause ground disturbance in the form of burrowing (i.e. **rabbits**, **foxes**) are of significant concern to a place such as Direl, damaging sensitive vegetation, landforms and cultural heritage. However, eradication methods such as warren '**ripping**' (Sharp 2012)—perceived to be more effective than non-destructive methods by local farmers (various landowners pers. comm., 2019)—are also highly damaging. Foxes also pose a threat to native animals.

A previous report documented the devastating effects of warren ripping on cultural heritage at Oven Mounds in Balmers Tank Reserve (Edmonds et al. 1997). It recommended that ripping be stopped and replaced by non-destructive methods such as fumigation and/or poisoning (Edmonds 1997: 33).

Dealing with the issue of rabbits at Lake Tyrrell has been a core focus of Sea Lake Landcare. The Mallee CMA also identified '*invasive fauna (Terrestrial)*' as a key issue to manage in the Mallee region (MCMA 2014: 95-6).

4.5.7 Rubbish dumping

Rubbish is an issue at Direl in varying forms and degrees within all surveyed areas—from plastic bottles, gumboots, plastic food packaging, and other personal waste to vehicle parts, abandoned vehicles, and larger (possibly historic) dumps of building materials. Plastic waste was the most common form of litter observed at Direl. Despite signage encouraging the correct disposal of rubbish at Direl, there are no bins available (Photograph 105).

It is likely that most of this rubbish has accumulated as a result of **tourist access** and during the **Mallee Rally** events.

Some large objects—car parts, oil drums, water containers, hay bales, and tyres—have been purposefully placed along the Mallee Rally vehicle tracks as markers or buffers. While not technically 'dumped', these items negatively impact upon the aesthetic and environmental values of Direl. Over time, some items also have the potential to degrade and contaminate the environment.





Photograph 105: Bilingual sign along Baileys Road indicating fines for specific activities, including rubbish disposal. Facing North. P. Kucera (12/11/2019).



5 CONSERVATION POLICIES

This section presents **conservation policies** for the **management of Direl**.

These policies are **based** on:

- the information obtained through consultation and fieldwork (Section 2)
- the identification of key values (Section 3), and
- legislative requirements and the observed impacts of various activities (Section 4).

Their **purpose** is to provide management strategies aimed at **protecting** and minimising harm to the **Aboriginal cultural heritage material** and **Aboriginal cultural values** at Direl.

Conservation policies directed at managing **specific threats** (Section 4) are discussed first. In the second part of this section Direl is divided into **five management zones**, each with its own specific policies relevant to the landforms and activities of each zone.

5.1 MANAGEMENT STRATEGIES

As described in Section 1, a **Traditional Owner Reference Group** (TORG) was established to guide the CMP—to assist in identifying key values and concerns, to help direct the fieldwork, and to advise the consultants on management strategies.

Similar approaches have been taken in other **culturally sensitive locations** (e.g. Indigenous cultural landscapes, National Parks, and Protected Areas) where there are multiple Traditional Owner interest groups, both in Australia and overseas. For example, at Lake Mungo National Park (NSW) an Elders Council was established, as well as a joint management advisory committee, with a much broader membership from local councils, landholders, conservation groups, and government (DEC NSW 2006: 2). Ulu<u>r</u>u-Kata Tju<u>t</u>a National Park also has a Joint Management Plan between Nguraritja (Traditional Owners) and relevant Aboriginal people and the Director of National Parks (DNP 2010).

A similar form of **collaborative joint management** (e.g. an advisory group or committee) could potentially be established for **Direl**. This group should comprise: an advisory body formed by **Traditional Owners**; and other relevant or interested **stakeholders**, including representatives from Parks Victoria, DELWP, Mallee CMA, Buloke Shire Council, Swan Hill Rural City Council, Cheetham Salt, local landowners, and other local interest groups (e.g. Advance Sea Lake Inc.).

This type of management can open a channel of **ongoing communication** between interested parties, which can help **guide decision-making** for Direl and **balance the interests** of various stakeholders. In this way, support for some future strategies—such as land rehabilitation, erosion minimisation, and pest control—could also potentially be sought through existing projects, like the Mallee CMA Tyrrell Project (see Section 4.1.2).

Joint agreements made by the group could function in a similar way to an *Aboriginal Cultural Heritage Land Management Agreement (ACHLMA)*, which is a voluntary agreement between a Registered Aboriginal Party (RAP) and a public land manager:

'for the purposes of managing or protecting Aboriginal cultural heritage in a specified area'

(Division 1A, section 74A of the *Aboriginal Heritage Act 2006*; Schedule 4, Regulation 75(b) of the *Aboriginal Heritage Regulations 2018*).





Lake Mungo National Park is also a good example of the types of **management practices** and **infrastructure** that could be successful at Direl, such as an information centre, boardwalks, toilet facilities, parking, and signage. The information centre in particular has greatly assisted in promoting the natural and cultural significance of the place and directing tourists to the appropriate park facilities (DEC [NSW] 2006: 29).

Tourism that involves strong **cross-cultural programs**, run and managed by Indigenous communities, is found at Rock Art sites at Namadgi National Park (ACT) (DTMS 2010) and at Budj Bim Cultural Landscape (Vic) (DEE 2017).

5.1.1 Appropriateness of activities and knowledge sharing

The **significance** of Direl (Section 3) extends beyond cultural heritage material and the environment, including aesthetic, spiritual and other intangible **values**. These values must be considered in the formulation of management strategies.

The **appropriateness** of various activities and uses of Direl should align with the key values of the Traditional Owners.

Similarly, **communications** of the significance of Direl to the **wider community** should be done in a way and form that is endorsed by the Traditional Owners, and which reflects the sensitive nature of much of the Aboriginal cultural heritage here.

5.2 MANAGEMENT OF THREATS AND ACTIVITIES

Many of the current threats at Direl are interrelated (Section 4.5). The range of **management strategies** presented here target the **key threats** to **cultural heritage**, **values** and the **environment**.

5.2.1 Erosion

The following strategies are recommended to help **manage** and **reduce** the impacts of **erosion** at Direl:

Management strategies

- 1. *Systematic environmental survey*—to fully understand and record the extent and location of damage caused by erosion.
- 2. *Revegetation works*—in areas severely damaged by erosion (e.g. some sections of vehicle tracks should be considered for restoration).
- 3. *Pedestrian access* via *approved paths and boardwalks*—in popular tourist areas (e.g. the Lake Tyrrell Project viewing platform; Cooper et al. 2019).
- 4. *Prohibit non-essential vehicle access*—including the Mallee Rally and tourists.
- 5. *Surface cover in farmed areas*—to ensure the retention of topsoil in areas prone to significant erosion (e.g. the lunette dunes).
- 6. *Revegetation of farmland*—in disused or unproductive areas.
- 7. *Eradication of introduced species*—to prevent damage from burrowing etc. (e.g. rabbits, foxes) (see also Section 5.2 .5).

Desired outcomes

1. Minimisation of the impact of erosion caused by human activities and natural processes on cultural heritage.



- 2. Reduction of vehicle and foot traffic within Direl.
- 3. Control and minimisation of erosion by revegetating and regenerating exposed and eroding areas.
- 4. Promoting the recovery and expansion of habitats leading to a healthier environment.

5.2.2 Vehicle access and use, and the Mallee Rally

The following strategies are recommended to help **manage** and **reduce** the impacts of **vehicle access** at Direl:

Management strategies

- 1. *Systematic track survey*—of the entire Mallee Rally track and associated access tracks to fully assess the extent of impacts caused by vehicles.
- 2. *Discontinue the Mallee Rally* and/or *prohibit other off-road vehicle access*—to prevent further harm and erosion.
- 3. *Re-purpose the Mallee Rally track*—as a management access track (i.e. restricted access, infrequent use, low speed limit).
- 4. *Improved visitor infrastructure and signage*—to manage visitor vehicle access and establish appropriate access points (e.g. parking, roads, fencing, gates, signs; such as those nearing completion for the Lake Tyrrell Lake Project).
- 5. *Rehabilitation of unused or infrequently used tracks*—through active replanting of native vegetation or natural regrowth.

Desired outcomes

- 1. Minimisation of the number of vehicles accessing Direl.
- 2. Prevention of further damage to cultural heritage and the environment by vehicles.
- 3. Reduction of the intensity of vehicle use on the Mallee Rally Track and other access tracks.
- 4. Restriction of vehicle access to formal tracks and by authorised vehicles only.
- 5. Rehabilitation of landforms where tracks have had a significant impact and rehabilitation of disused tracks via revegetation.
- 6. Installation of accurate signage about which tracks are appropriate to use.
- 7. Prevention of unregulated tourist access.

5.2.3 Farming activities

The following strategies are recommended to help **manage** and **reduce** the impacts of **agricultural activities** at Direl:

Management strategies

- 1. *Systematic survey of private farming land*—to fully understand the extent of damage and impacts.
- 2. *Discontinuation or minimisation of destructive farming practices*—in areas of known cultural heritage (e.g. ploughing, ripping).
- 3. *Rehabilitation/Revegetation (native)*—in disused or infrequently used farming areas.





- 4. *Cultural heritage education*—provide information about cultural material and relevant legislation to local landowners and farmers.
- 5. *Improved infrastructure and signage*—to prevent unregulated public access to farming areas/private property, and exclude livestock from sensitive areas (e.g. fence maintenance, gates, signs).
- 6. *Land buyback program*—full or partial government buyback if opportunities arise (i.e. acquire, restore and rehabilitate).

Desired outcomes

- 1. Minimisation/elimination of all unnecessary/avoidable impacts of farming activity on cultural heritage.
- 2. Revegetation or regeneration of areas of farming land where possible.
- 3. Identification of further areas of erosion and documenting the impact on cultural heritage.
- 4. Improved information/education about cultural heritage material (including protections and obligations under the AHA Act 2006) for local landholders.
- 5. Improvement of the environmental health and aesthetic quality of disused farmland through revegetation.
- 6. The acquisition and rehabilitation of land through buybacks, which can be managed by public authorities, with greater responsibilities set relating to obligations required by the *Aboriginal Heritage Act 2006.*

5.2.4 Tourism

Plans for the management of tourism have been partially addressed in CHMP 15200 (Cooper et al. 2019), where the proposed activity involves the construction of tourism infrastructure—including toilet facilities, a boardwalk, parking, and information boards—on the southern shoreline of the lake.

The following strategies are recommended to help **manage** and **reduce** the impacts of **tourism** at Direl:

Management strategies

- 1. *Construction of tourism infrastructure*—to prevent unregulated visitor access (e.g. boardwalks, signage, bins, toilets, and parking—bearing in mind light pollution).
- 2. *Multilingual public information*—information about access and significance etc. should be in English and other languages.
- 3. *Improved online content*—e.g. on the Parks Victoria website.
- 4. *Dedicated information centre*—to inform the public about Aboriginal heritage and the natural environment.
- 5. *Visitor statistics*—information gathering to ensure appropriately allocated management resources (e.g. country/state of origin, reasons for visiting, preferred place/duration of stay).

Desired outcomes

- 1. Promotion and preservation of cultural heritage values, including intangible heritage.
- 2. Prevention of further damage to cultural heritage by tourists.



- 3. Greater cross-cultural awareness for tourists.
- 4. Regulation of the access points for tourists visiting the lake.
- 5. Limitations to vehicle access by tourists.

5.2.5 Pests and invasive species

The following strategies are recommended to help **manage** and **reduce** the impacts of **pests** at Direl:

Management strategies

- 1. *Systematic pest survey*—to determine the location of rabbit warrens and to identify other animal or plant pests (in particularly on freehold land).
- 2. *Specialised pest management strategies*—developed by ecologists or appropriate pest experts.
- 3. *Prioritise non-destructive pest removal methods*—ground disturbing methods (e.g. warren ripping) should be avoided if possible in preference to methods such fumigation or biological control; preferred methods should be communicated to private landowners.

Desired outcomes

- 1. Reduction/eradication of invasive species at Direl.
- 2. Implementation of effective and non-ground disturbing pest reduction strategies.
- 3. Repopulation of native flora and fauna and enhancement of biodiversity.

5.2.6 Rubbish dumping

The following strategies are recommended to help manage and reduce the impacts of rubbish at Direl:

Management strategies

- 1. *Provision of waste bins*—in particular in areas frequented by tourists.
- 2. *Clean-ups*—regular, dedicated events/efforts (public or private) to remove rubbish and waste. Possible historical deposits need to be managed separately in consultation with Heritage Victoria.
- 3. *Removal of large dumped items*—(e.g. abandoned vehicles) as part of long-term plans to maintain aesthetic values.
- 4. *Additional (multilingual) signage*—in areas frequented by tourists.

Desired outcomes

- 1. Provision of appropriate ways to dispose of rubbish for visitors.
- 2. Minimisation of the amount of rubbish brought into Direl.
- 3. Removal of existing rubbish.
- 4. Improved awareness about littering and the associated penalties.

5.2.7 Salt mining

Any future extractive and mining licence proposals by industry groups (Cheetham Salt included) should be carefully considered in relation to potential impacts to Aboriginal cultural heritage.





The following strategies are recommended to help **manage** and **reduce** the impacts of **salt mining** at Direl:

Management strategies

- 1. *Heritage assessments*—should be ongoing within areas leased by Cheetham Salt.
- 2. Minimisation of unauthorised vehicle access—into leased areas (e.g. signage, gates, fencing).
- 3. *Renegotiation of inactive lease areas*—government/council should regain control of any areas of leased and/or licenced land that are not actively used for salt mining; land should then be retained and council/government bodies take over responsibility for protecting cultural heritage and implementing management strategies (e.g. rehabilitation and revegetation).
- 4. *Revegetation and rehabilitation programs*—Cheetham Salt to be encouraged to further participate in remediation of leased land and surrounds.
- 5. *Cultural awareness training*—for Cheetham Salt staff, to provide claritiy regarding heritage values and obligations in relation to the *Aboriginal Heritage Act 2006*.

Desired outcomes

- 1. Ensuring that best practice in cultural heritage management is continued by Cheetham Salt andthat damage to cultural heritage is avoided and appropriate procedures are followed.
- 2. Take up of opportunities for renegotiating areas of leased/licenced land that could benefit from inclusion into land management frameworks facilitated by public land managers.
- 3. Supporting the revegetation and rehabitation of land negatively impacted by salt mining.
- 4. Promotion of cultural awareness and understanding of heritage obligations for Cheetham Salt staff to benefit the long-term management of the area.

5.3 RECOMMENDED MANAGEMENT ZONES

Given the complex, mixed land management responsibilities at Direl (Section 4.1), this section focusses on the **management conditions** to be implemented, rather than where the responsibilities for management lie.

Six different **Management Zones** have been defined within Direl (Map 7). Proposed conservation strategies for the management of **Aboriginal cultural heritage** are outlined for each zone.

Four of these Management Zones—the Southeast (MZ1), the Northern Shore (MZ2), the Eastern Lunettes (MZ3), and the Western Shore (MZ4)—incorporate the eight survey areas investigated for the CMP, in which specific landuse activities and impacts on cultural heritage have been identified (Table 5).

Areas of high concern have been identified within each of these zones, as priority areas for management by the appropriate land manager.

Two **additional management areas**—the Southwest (MZ5) and Lake Tyrrell Waterbody (MZ6), the latter inclusive of islands and semi-detached peninsulas—have also been proposed. Because these additional areas have not been surveyed for the CMP the management conditions are informed by previous research and investigation, as well as an understanding of the cultural values of Direl. A specific **'action plan'** for implementation of these management policies is provided in Section 6. Implementation of this Management Plan should incorporate consultation with all identified groups.



Table 5: Land use	activities and im	pacts at Direl b	y Management Zone

*unsurveyed – information drawn from previous reports and documentation.





Map 7: Recommended management zones within Direl Place.





5.3.1 Management Zone 1: The Southeast

Location: Management Zone 1 (MZ1) covers a portion of the southeastern part of Direl. MZ1 incorporates: Survey Area 1; the Mallee Rally staging point; portions of the Mallee Rally track; the mouth of Tyrrell Creek; and Balmers Tank Reserve (Map 7).

Critical threats: Vehicle access and use (including the Mallee Rally); invasive species (primarily rabbit burrowing); tourist access and erosion.

Areas of high concern: The Mallee Rally staging area including the adjacent low rise (viewing area); footprint of the Mallee Rally track.

Conservation Management Policies: Cessation of the Mallee Rally; revegetation of eroding areas; removal of dumped waste; non-destructive rabbit and pest control measures.

A summary of previously and newly **recorded places and components** in MZ1 is given in Table 6.

The survey of Area 1 identified several significant **threats** (see Section 2, 4) to these places and components, including: (1) damage caused by vehicles, primarily linked to the Mallee Rally and associated activities; (2) damage caused by rabbit burrowing; (3) erosion linked to the removal of vegetation; (4) dumping of rubbish; and (5) unregulated vehicle access.

The **critical management issue** for this zone is the minimisation of harm caused by **vehicle use** that can lead to the loss of Aboriginal cultural heritage. The most effective way to manage the damage caused by vehicles in MZ1 is to stop the **Mallee Rally** from proceeding and restrict vehicle access and use of tracks in the future. The discovery of hearths and flaked stone material directly on the Mallee Rally track and/or associated access tracks gives a clear indication of the immediate threats to material culture. As a destructive and culturally inappropriate activity, this report supports an immediate and on-going cessation of the Mallee Rally.

MZ1 includes **mixed management arrangements** between current landowners/land managers and lease holders (including Parks Victoria, farmers, and the Sea Lake Off-Road Club).

Component type	No.
Artefact Scatter	15
Artefact Scatter (isolated artefact)	2
Earth Feature (Hearth)	13
Earth Feature (Mound)	5
Total	35

Table 6: Summary of VAHR places and place components in Management Zone 1.





5.3.2 Management Zone 2: Northern Shore

Location: Management Zone 2 (MZ2) incorporates: Survey Area 2; Box Gully; the northern shore of the lake; and portions of the Mallee Rally track (Map 7).

Critical threats: Vehicle access and use (including the Mallee Rally); invasive species; tourist access.

Areas of high concern: Vehicle tracks (main and access, including those used for the rally event).

Conservation Management Policies: Cessation of the Mallee Rally; revegetation of eroding areas; removal of dumped waste; non-destructive pest control measures; clearer delineation of Crown land and private parcels.

A summary of previously and newly **recorded places and components** in MZ2 is given in Table 7.

The survey of Area 2 identified several significant **threats** (see Section 2, 4) to these places and components, including: (1) damage caused by vehicles, primarily linked to the Mallee Rally and associated activities; (2) damage caused by rabbit burrowing; (3) erosion linked to the removal of vegetation; (4) dumping of rubbish; and (5) unregulated vehicle access.

The **critical management issue** for this zone is the minimisation of harm caused by **vehicle use** that can lead to the loss of Aboriginal cultural heritage.

This report **supports the management recommendations** given in Edmonds et al. (1997: 33) for: cessation of the Mallee Rally; the restriction of grazing in private land parcels and termination of grazing on Crown Land; and for the boundaries of Crown and private land to be more clearly defined.

Other **general management issues** such as managing erosion, pests and waste in MZ2 require action. Effective, longer-term management strategies for eroding, exposed, and inundated cultural heritage material should be discussed between the appropriate landowners and Traditional Owner representatives.

MZ2 includes **mixed management arrangements** between Crown land managers (DELWP) and private landowners.

Component type	No.
Artefact Scatter	42
Artefact Scatter (isolated artefact)	1
Earth Feature (Hearth)	28
Earth Feature (Soil Deposit)	1
Low Density Artefact Distribution	9
Total	81

Table 7: Summary of VAHR places and place components in Management Zone 2.





5.3.3 Management Zone 3: Eastern Lunettes

Location: Management Zone 3 (MZ3) incorporates: Survey Area 3; the eastern lunette dunes along the eastern shore of the lake; and portions of the Mallee Rally track (Map 7).

Critical threats: Wind erosion; water erosion; ploughing; vehicle access and use; rabbit burrowing.

Areas of high concern: The entire eastern lunette system; vehicle tracks (main and access, including those used for the rally event).

Conservation Management Policies: Revegetation of eroding areas; improved cultural awareness for private landowners; non-destructive pest control measures; and the cessation of the Mallee Rally.

A summary of previously and newly **recorded places and components** in MZ3 is given in (Table 8).

The survey of Area 3 identified several significant **threats** (see Section 2, 4) to these places and components, including: (1) severe wind and water erosion, linked to the land clearance, overcropping and overgrazing; and (2) damage caused by agricultural machinery (e.g. ploughs). There were no well-defined vehicle tracks within survey of Area 3; however, the Mallee Rally track runs alongside the shoreline in the vicinity.

The cultural heritage in this area has been identified as highly significant and culturally sensitive.

Severe erosion has led to the exposure of Ancestral Remains, earth features and large numbers of flaked stone artefacts, which are vulnerable to current land use activities. Physical protection of the place should be implemented to ensure that: a) no further harm comes to the area, and b) the existing heritage can be properly protected and preserved.

The **critical management issue** for this zone is the mitigation of factors contributing to the immediate loss of Aboriginal cultural heritage, specifically **farming practices and erosion**.

Other **general management issues** include the need for improved **cultural awareness** among private landowners with respect to their understanding of the *Aboriginal Heritage Act 2006* and their obligations to protect Aboriginal cultural heritage. Additional proposed measures include: replacing **destructive pest control practices** with non-destructive methods; a restriction of **grazing** in private land parcels; and the termination of grazing on Crown land. Vehicle access and use on the western fringes of this area also needs to be managed, including cessation of the Mally Rally event, which poses a threat to Aboriginal cultural heritage.

MZ3 includes **mixed management arrangements** between Crown land managers (DELWP, Parks Victoria), and private landowners.

Component type	No.
Artefact Scatter	17
Earth Feature (Hearth)	7
Scarred Tree	1
Total	25

Table 8: Summary of VAHR places and place components in Management Zone 3.





5.3.4 Management Zone 4: Western Shore

Location: Management Zone 4 (MZ4) incorporates: the narrow strip of land along most of the western shore of Lake Tyrrell and peninsula (parts of which are under lease by Cheetham Salt); the main Cheetham Salt facility and salt pans; and portions of the Mallee Rally track (Map 7).

Critical threats: Vehicle access and use (including the Mallee Rally); wind erosion; water erosion; rabbit burrowing.

Areas of high concern: Terrace landforms; peninsulas and promontories; areas within or close to Cheetham Salt operations; vehicle tracks (main and access, including those used for the rally event).

Conservation Management Policies: Cessation of the Mallee Rally; revegetation of eroding areas; non-destructive pest control measures; ongoing cultural heritage assessments.

A summary of previously and newly **recorded places and components** in MZ4 is given in Table 9.

A previous survey of Lake Tyrrell (Edmonds et al. 1997) identified **three critical threats** to Aboriginal cultural heritage, which were confirmed by the CMP: (1) erosion control; (2) vehicle access; and (3) possible commercial development by Cheetham Salt. These remain the most pressing threats to Aboriginal cultural heritage within MZ4.

The **critical management issue** for this zone is the mitigation of factors contributing to the immediate loss of Aboriginal cultural heritage, specifically **vehicle access** and **use of tracks**. Repeated use of the main vehicle track along the western shore (and diversions off it) has significantly impacted ground surfaces, vegetation, and culturally sensitive landforms.

Erosion control measures should be applied within MZ4, particularly at the locations of recorded cultural heritage places and the identified culturally sensitive landforms. These include rehabilitation and revegetation of: vehicle tracks (where appropriate); and open and exposed areas of ground that have been degraded by natural erosion. Inappropriate and/or destructive activities such as the Mallee Rally should be discontinued to prevent further damage to culturally sensitive landforms and avoid harm to cultural heritage along tracks.

Effective, **longer-term management strategies** for eroding and exposed cultural heritage material should be discussed between the appropriate land managers and Traditional Owner representatives, and should include regular archaeological survey, recording, and monitoring of previously recorded VAHR components (see Section 6).

MZ4 includes **mixed management arrangements** between Crown land managers (DELWP), leased land holders (Cheetham Salt), and private landowners.

Component type	No.
Artefact Scatter	9
Artefact Scatter (isolated artefact)	7
Earth Feature (Hearth)	8
Low Density Artefact Distribution	2
Object Collection	2
Total	28

Table 9: Summary of VAHR places and place components in Management Zone 4.





5.4 ADDITIONAL MANAGEMENT ZONES

As mentioned above, as these two additional proposed management zones (MZ5 and MZ6) were not surveyed as part of the CMP fieldwork, management conditions are informed by previous research and investigation, and an understanding of the cultural values of Direl.

5.4.1 Management Zone 5: The Southwest

Location: Management Zone 5 (MZ5) incorporates: the BGLCAC RAP area on the southwest shoreline of the lake (Map 7); the area reserved for tourist purposes (sub-leased by BSC) (see Map 4).

Critical threats: Vehicle access and use (including the Mallee Rally); tourist access.

Areas of high concern: Popular tourist areas (the end of Baileys Road); vehicle tracks (main and access, including those used for the rally event).

Conservation Management Policies: Cessation of the Mallee Rally; management of tourist access.

A summary of previously recorded places and components in MZ5 is given in Table 10.

Informal inspection within MZ5 identified several **impacts** and **ground disturbances**, including: (1) rubbish dumping; (2) erosion; and (3) damage caused by tourist foot traffic, resulting in vegetation loss.

Portions of proposed MZ5 were recently subject to archaeological survey and excavation (Cooper et al. 2019) in relation to the *Lake Tyrrell Lake Project*, which aims to manage and reduce the impact of tourists. **Works** undertaken for this project (near completion) may provide an adequate response to the threats identified in MZ5.

These **works** include landscaping and planting of native vegetation, upgrades and realignment of Lake Tyrrell Road and Baileys Road, and the construction of: a pedestrian path from the parking area to the water's edge (1.3 km); shade and signage nodes along the pedestrian path; a carpark and coach turnaround area; toilets, interpretative shelters and a viewing platform; waste water disposal area; a jetty onto the lake; a Sky Lounge; installation of 'TYRRELL' 3D big letters; and a boardwalk over the lake (Cooper et al. 2019: ii).

A **strategy to assess the effectiveness** of these measures in managing tourism should be implemented in MZ5, involving recurrent inspections (Section 6).

Additional recommendations in this area include cessation of the Mallee Rally and regenerating main vehicle and access tracks (where appropriate) with local native vegetation. This could be facilitated through the establishment of an Aboriginal Cultural Heritage Land Management Agreement (ACHLMA) between the BGLCAC (as the RAP) and public land managers.

MZ5 includes **mixed management arrangements** between BGLCAC, Buloke Shire Council (sub-leased area from Cheetham Salt) and Advance Sea Lake Inc. (tourist area).

able 10: Summary of VAH	R places and place componer	nts in Management Zone 5.
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Component type	No.
Artefact Scatter	2
Low Density Artefact Distribution	10
Total	12





5.4.2 Management Zone 6: Lake Tyrrell (lake body)

Location: Management Zone 6 (MZ6) incorporates: the lake body of Lake Tyrrell, inclusive of islands; the large semi-detached peninsula with large lagoons; and some strips of shoreline, partially aligned with the Parks Victoria Wildlife Reserve (Map 7).

Critical threats: Expansion of salt mining activities; vehicle access and use (including the Mallee Rally); tourist access.

Areas of high concern: Popular tourist areas; vehicle tracks (main and access, including those used for the rally event).

Conservation Management Policies: Management of tourist access; cessation of the Mallee Rally; management of potential future salt mining or mineral extraction activities.

A summary of previously **recorded places and components** in MZ6 is given in Table 11.

MZ6 is designed to **maintain** and **protect Aboriginal cultural heritage**, and the **environmental and aesthetic qualities** of the lake body, islands, and salt pans that have made it popular as a tourist attraction.

Few **cultural heritage places** have been recorded within MZ6. The primary grid coordinates of Direl (VAHR 7427-0187) are contained within this zone. The **lake** is a crucial part of the **cultural significance** of Direl as it relates to and embodies astronomical—its name meaning 'sky'—and Dreamtime stories.

Management of MZ6 should focus on two main aspects: (1) mineral prospection and extraction from the lake; and (2) managing tourist access and related damages.

Recommendations for MZ6 include:

- the current salt extraction operations should not be expanded beyond the current area or scale
- any future changes to operations must follow appropriate permits and protocols (re: *Aboriginal Heritage Act 2006* and the *Aboriginal Heritage Regulations 2018*)
- future extractive and mining licence proposals should be carefully considered by the Earth Resources Regulation authority (Vic) in terms of the appropriateness of the activity with respect to Direl and the potential impacts to Aboriginal cultural heritage.
- ongoing communication and education should be maintained between Traditional Owner groups and Cheetham Salt (involving Mallee CMA where appropriate)
- cessation of the Mallee Rally (segments of the track pass through MZ6), and
- the regulation and minimisation of tourist access (including off-road vehicle use, e.g. cars, tractors, trail bikes, motorcycles etc.) to the lake body.

MZ6 includes **mixed management arrangements** between Parks Victoria, DELWP, Mallee CMA, and Cheetham Salt.

 Table 11: Summary of VAHR places and place components in Management Zone 6.

Component type	No.
Aboriginal Cultural Place	1
Artefact Scatter	3
Earth Feature (Hearth)	1
Total	5



6 DEVELOP ACTION PLAN

6.1 ACTION PLAN AND ANNUAL WORKS PROGRAM

A list of **management strategies** has been developed to form an **Action Plan** for the protection of Aboriginal cultural heritage at Direl (Table 12), based on the conservation policies described in Section 5. Included in the Action Plan are:

- descriptions of tasks
- management and/or monitoring requirements
- the recommended time of year to complete the task
- the frequency of works for each strategy
- an estimated timeline of implementation, and
- the relevant Management Zone (Section 5) where these actions are required.

Priority levels are assigned to each strategy:

- 'high'—should be undertaken as soon as possible
- 'medium'—should be addressed as soon as possible but are of secondary importance
- 'low'—should be addressed after the initiation of the 'high' and 'medium' priority strategies

Many of the strategies listed in Table 12 require **further investigation** or other **specialist input** before they are undertaken. Recommendations for further investigation and research are outlined in Table 13. These are designed to provide guidance for how future research can contribute to the ongoing management of Direl to sustain and improve the values outlined in Section 3. Consultation in all aspects of cultural heritage management at Direl should be undertaken with the RAP (i.e. BGLCAC) and relevant Traditional Owner groups.



Table 12: Direl Action Plan and Strategies.

Action	Strategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
1. Vehicle A	ccess				
1(a) Cessation of the Mallee Rally at Direl	 The annual Mallee Rally event should be discontinued to prevent further harm to cultural heritage, damage to sensitive landforms around the lake, and impacts on cultural values. Additional activities related to the Mallee Rally track, such as the bi-annual 'trek' organised and run by SLORC must obtain the appropriate permits before proceeding. A comprehensive survey of the entire rally track course should be undertaken to identify further, undocumented impacts of the Mallee Rally on cultural heritage material (see also 2(d), 2(f) and 2 (g)). 	Immediately / Ongoing	Immediately	All	High
1(b) Vehicle tracks rehabilitation and access restriction	 All vehicle dirt tracks around the lake, including Lake Tyrrell Road on the west, any apparent secondary deviation tracks, access tracks, and disused tracks, that have been used by the Mallee Rally event and/or for other purposes should be examined for suitability of rehabilitation (meaning revegetation and return to a state that is closer to the natural environment). The assessment should also include non-operational, secondary, and disused tracks in leased areas managed by Cheetham Salt. The RAP and Traditional Owner groups must be engaged in this process, especially to advise on culturally appropriate measures to heal areas and landforms that are particularly sensitive for 	Any time of the year / Ongoing	First 1–3 years and thereafter	All	High



Action	Strategy and considerations	Recommended time of year	Timeline of implementation	Applicable Management	Priority
	Aboriginal cultural heritage. An ecologist and a Heritage	and frequency		Zones	
	 Advisor¹ should also be involved. Vehicle tracks should be rehabilitated and rejuvenated through revegetation where possible to protect areas where Aboriginal cultural heritage is present and to counteract the negative impacts of erosion, which threatens to expose and harm cultural heritage as well as cause the loss of habitat around the lake (see also 2(f) and 4). Those tracks or sections thereof located on Crown land (leased and non-leased) should be prioritised in the rehabilitation program in consultation with public land managers and lease holders (e.g. Cheetham Salt, SLORC), followed by extension to private land via negotiation with landowners. Eroded sections of vehicle tracks (e.g. where water has created deep incised gullies) should be appropriately rehabilitated and revegetated with advice from relevant ecological or Landcare groups or Parks Victoria. Sections of currently used or redundant vehicle tracks may need to be closed in support of rehabilitation measures. Land and water managers (e.g. Parks Victoria, DELWP, Mallee CMA) should consider maintaining a circuit track around the lake that has a less pronounced profile (i.e., narrow, and still vegetated), to be used only as an access track for maintenance/authorised vehicles. The track should be used in limited frequency. Vehicle access to a circuit track on Crown land must be restricted to authorised vehicles (see 1(c) and 7(a)). 				

¹ The Heritage Advisor must be a suitably qualified person who meets the requirements of s.189 of the Aboriginal Heritage Act 2006 and the Minister's Guidelines.



Action	Strategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
	 Waste along tracks related to the Mallee Rally event (e.g. tyres, water drums and abandoned vehicles) should be removed and appropriately disposed of — unless serving a safety function — if located on Crown land. This will contribute to maintaining the aesthetic values at Direl. Where applicable, permission and/or an agreement with relevant landowners/occupiers to access freehold land and carry out the measures must be sought prior to commencing this activity. Submission of a Notice of Intent (NOI) to carry out a survey for Aboriginal cultural heritage for the purpose of the <i>Aboriginal Heritage Act 2006</i>, to Victorian Aboriginal Heritage Register (VAHR) may be required for preliminary investigations relating to the development of a rehabilitation program and if deemed necessary must be submitted prior to any fieldwork component. These rehabilitation activities must be managed in one of three ways: Through an approved cultural heritage management plan (CHMP). For example, a voluntary CHMP could be prepared specifically for a large-scale program of rehabilitation works at Direl or such works could be included in the activity description and form part of management conditions for any mandatory CHMP that is required and prepared for a proposed high impact activity within the extent of Direl. Through an Aboriginal Cultural Heritage Land Management Agreement (ACHLMA) (see 10(a)), in which such rehabilitation works are detailed as a permitted land management activity. 				



Action	Stı	rategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
		c. Through a Cultural Heritage Permit (CHP). The CHP must be obtained from FP-SR to undertake the rehabilitation activities at Direl and should include a condition relating to the conservation of cultural heritage found during the activity.				
1(c) Unrestricted and unregulated public/tourist access	1. 2. 3.	Signage related to 'authorised vehicle use only', 'conservation area', and 'permission to access the lake' should be increased and/or improved. Access points should be made clear through signage (e.g. on gates or designated signposts, see 7(a)). Locked gates should also be considered as a control measure. Further strategies to improve tourist access to information about Direl and regulate visitation should be implemented. This has commenced at the southern end of the lake where the 'Lake Tyrrell Lake Project' works are in progress. Strategies to improve cross-cultural communication and education for tourism providers, e.g. the implementation of an official education program to facilitate engagement between the RAP, Traditional Owner groups, and tourism operators, should be implemented (see 2(d)).	Any time of the year / Cyclical / Ongoing	First 1–5 years and thereafter	All	Medium
2. Aborigina	l Cu	Itural Heritage				
2(a) Advisory Committee/ Group for Lake Tyrrell and Direl	1. 2.	Establishment of an Advisory Committee or Advisory Group for Lake Tyrrell and 'Direl' (VAHR 7427-0187) that includes the RAP(s) and relevant Traditional Owner groups should be encouraged. An invitation to participate should also be extended to all relevant land/water manager/owner stakeholders.	Any time of the year / Ongoing	First 1–3 years and thereafter	All	High



Action	St	rategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
	3.	The creation of a committee or group such as this would enhance efforts to protect Aboriginal cultural heritage and guide conservation strategies and healing of Country at Direl.				
2(b) Direl may be considered for an Ongoing Protection Declaration	1.	The extent of 'Direl' (VAHR 7427-0187) may be considered for future declaration under an Ongoing Protection Declaration. Under the <i>Aboriginal Heritage Act 2006</i> , the Minister for Aboriginal Affairs may declare an Aboriginal place(s) or object(s) of particular cultural heritage significance under an Ongoing Protection Declaration (<i>Division 2, Section 103</i>).	Any time of the year / Ongoing	First 1–5 years	All	Low
2(c) Review the current Direl Place extent	1. 2. 3.	Redefining or refining the place extent of 'Direl' (VAHR 7427- 0187) should be considered. New and existing data presented in the CMP mean that the extent should be re-appraised based on additional research, further examination of related landforms, and consultation with the RAP and Traditional Owner groups (beyond the original registration proposed by BGLCAC). This was previously recommended by Cooper et al. (2019: 145). Additional geographic features of the Lake Tyrrell landscape should be considered in the review of the Place extent— including the upper, northeastern boundaries of the eastern lunette system, and the northern part of Tyrrell Creek (i.e. at the mouth of the creek). The current Direl Place registration (VAHR 7427-0187) should be adapted to merge and incorporate existing places as components within the extent of VAHR 7427-0187.	Any time of the year / Ongoing	First 1–3 years and thereafter	All	Low
2(d) Improved cultural	1.	Recognition of the cultural heritage significance of Direl can be assisted/achieved through changes to the nomenclature of the Place, in accordance with traditional Indigenous knowledge.	Any time of the year	First 1–3 years	All	High



Action	Strategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
awareness at Direl	 Collaboration between the RAP, Traditional Owner groups, the general public, and relevant government agencies is recommended to discuss a potential renaming (or dual naming) of Lake Tyrrell, to include the name Direl. Increased information about the Aboriginal connections to Direl should be provided through close consultation with the RAP and relevant Traditional Owner groups. This may include the creation of an information centre, or the installation of informative signs. This could occur at Lake Tyrrell itself, or in the nearby town(s), e.g. Sea Lake. Relationships should be fostered between the RAP, Traditional Owner groups, and tourism operators to involve Traditional Owners in tours, enabling them to engage directly with community groups and the general public to promote cultural awareness, stimulate respect for Aboriginal cultural heritage, and educate about the cultural significance of Direl. More cultural awareness training should be encouraged for leased land/licenced land holders (e.g. non-government entities such as Cheetham Salt or private individuals) that involve engagement with representatives from the RAP and Traditional Owner groups, with the aim to develop further respect and understanding of Aboriginal cultural heritage and specifically the cultural significance of Direl. 	Any time of the year / Ongoing	First 1–3 years and thereafter	All	High
2(e) Inspect known Aboriginal places/ components	1. Regular (e.g. yearly) inspection of known (i.e. previously recorded) VAHR places/components by a Heritage Advisor and RAP and Traditional Owner representatives will help to assess conditions and identify potential new threats posed to Aboriginal cultural heritage. Known Aboriginal cultural heritage	Any time of the year / Cyclical (Likely autumn through to	First 1–3 years and thereafter	All	High



Action	Strategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
	 places/components may be subject to alteration, destruction, or disturbance by natural and/or human processes. It is noted that the primary grid coordinates of some previously recorded places on the VAHR may be inaccurate; their location should be corrected through ground-truthing during an inspection. Follow-up place inspections of known VAHR places/components will be beneficial to inform strategies designed to mitigate further harm (see 2(f)). The results of the place inspections must be submitted as place record updates to the VAHR in a timely manner. Where applicable, permission and/or an agreement with relevant landowners/occupiers to access freehold land and carry out inspections must be sought prior to commencing this activity. 	spring, not summer)			
2(f) Rehabilitate land where previously recorded Aboriginal places/ components are present	 At certain locations around Direl, such as along the west side of the lake, Crown land containing previously recorded Aboriginal places is damaged and should be rehabilitated (e.g. via revegetation, sandbagging etc.) to prevent further exposure of and potential harm to cultural heritage (see also 1(b)). Areas and landforms impacted should be examined for suitability of rehabilitation and appropriate strategies should be developed to stabilise and revegetate the damaged land. The RAP and Traditional Owner groups must be engaged in this process, especially to advise on culturally appropriate measures to heal areas and landforms that are particularly sensitive for Aboriginal cultural heritage. An ecologist and a Heritage Advisor should also be involved. 	Any time of the year / Ongoing (Likely autumn through to spring, not summer)	First 1–3 years and thereafter	All	High



Action	Strategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
	 Where applicable, permission and/or an agreement with relevant landowners/occupiers to access freehold land and carry out the measures must be sought prior to commencing this activity. Submission of a Notice of Intent (NOI) to carry out a survey for Aboriginal cultural heritage (under the <i>Aboriginal Heritage Act 2006</i>) to Victorian Aboriginal Heritage Register (VAHR) may be required for preliminary investigations relating to the development of a rehabilitation program. If deemed necessary this must be submitted prior to any fieldwork component. A Cultural Heritage Permit must be obtained from FP-SR to undertake this fieldwork activity. The effectiveness of rehabilitation works should be monitored regularly by Traditional Owners (including the RAP), Heritage Advisors, and ecologists, e.g. through place inspections, with observations used to inform future remedial measures. Funding support to enable rehabilitation programs and related strategies should be explored at different government levels. 				
2(g) Regularly survey for newly exposed and/or previously unrecorded Aboriginal cultural heritage places/ components	 Regular survey should be undertaken for previously unrecorded Aboriginal cultural heritage places/components that may have become exposed though natural and artificial processes over time. Places/components which are not visible during certain times of the year due to ground cover may be observed in different conditions (see Table 13, Action 1(a)). Recording previously unregistered places/components on the VAHR assists in monitoring threats to Aboriginal cultural heritage at Direl. 	Any time of the year / Ongoing (Likely autumn through to spring, not summer)	First 1–3 years and thereafter	All – prioritising MZ3, MZ4 and MZ5	Medium



Action	Strate	egy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
	 Ri Qi pi re 4. W re ca ac 5. TI ca ac 5. TI ca ac ac	egular surveys by a Heritage Advisor and RAP and Traditional owner representatives to identify and assess any exposure of reviously unrecorded Aboriginal cultural heritage at Direl is ecommended. Where applicable, permission and/or an agreement with elevant landowners/occupiers to access freehold land and arry out the survey must be sought prior to commencing this ctivity. he Heritage Advisor must submit a Notice of Intent (NOI) to arry out a survey for Aboriginal cultural heritage (under the <i>boriginal Heritage Act 2006</i>) to the Victorian Aboriginal leritage Register (VAHR) prior to the fieldwork component. urvey methodology and recording should be devised according to FP-SR practice guidelines and standards, e.g. <i>Standards for Pecording Victorian Aboriginal Heritage Places and Objects</i> and <i>nformation Sheet: Surveys for Aboriginal Cultural Heritage</i> . A survey report and any new records (including spatial data) of aboriginal cultural heritage must be submitted to the VAHR in a imely manner.				
2(h) Survey uninspected areas in Direl Place	 La su in (ε lil A Se ac re 	arge portions of the Direl place extent have never been ubjected to a full systematic archaeological survey or nvestigation. Predictive models of other areas around the lake e.g. the eastern lunette system) suggest many areas are highly kely to contain Aboriginal cultural heritage (see Table 13, action 1(a)). ections of the eastern shoreline, the western shoreline, and dditional areas within the eastern lunette system at Direl equire a pedestrian archaeological ground survey to assess the	Any time of the year / Ongoing (likely autumn through to spring, not summer)	First 1–3 years	All – prioritising MZ3, MZ4 and MZ5	High



Action	Strategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
	 presence of Aboriginal cultural heritage and areas of cultural heritage sensitivity. The survey should be conducted by a Heritage Advisor and RAP and Traditional Owner representatives. Where applicable, permission and/or an agreement with relevant landowners/occupiers to access freehold land and carry out the survey must be sought prior to commencing this activity. The Heritage Advisor must submit a Notice of Intent (NOI) to carry out a survey for Aboriginal cultural heritage (under the <i>Aboriginal Heritage Act 2006</i>) to the Victorian Aboriginal Heritage Register (VAHR) prior to the fieldwork component. Survey methodology and recording should be devised according to FP-SR practice guidelines and standards, e.g. <i>Standards for Recording Victorian Aboriginal Heritage Places and Objects</i> and <i>Information Sheet: Surveys for Aboriginal Cultural Heritage</i>. A survey report and any new records (including spatial data) of Aboriginal cultural heritage must be submitted to the VAHR in a timely manner. 				
2(i) Survey and inspect for newly exposed Aboriginal cultural heritage places/ components after major weather events	 Pedestrian ground surveys are recommended to check for Aboriginal cultural heritage places/components in all areas of Crown land at Direl that may have been newly exposed after major weather events (e.g. heavy rainfall, severe and prolonged wind and/or dust storms). Previously unregistered places/components that are exposed by major weather events must be registered on the VAHR. 	Varied — after major weather events	First 1–3 years and thereafter	All	High



Action	Strategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
	 The results of any inspections of known (i.e. previously registered) places/components must be submitted as place record updates to the VAHR in a timely manner. The survey should be conducted by a Heritage Advisor or appropriately qualified and trained land management agency staff and must include RAP and Traditional Owner representatives. Where applicable, permission and/or an agreement with relevant landowners/occupiers to access freehold land and carry out the survey must be sought prior to commencing this activity. The Heritage Advisor must submit a Notice of Intent (NOI) to carry out a survey for Aboriginal cultural heritage (under the Aboriginal Heritage Act 2006) to the Victorian Aboriginal Heritage Register (VAHR) prior to the fieldwork component. Survey methodology and recording should be devised according to FP-SR practice guidelines and standards, e.g. Standards for Recording Victorian Aboriginal Heritage Places and Objects and Information Sheet: Surveys for Aboriginal Cultural Heritage. 				
2(j) Mapping and monitoring at Direl	1. Use of Unmanned Aerial Vehicles (UAVs) such as drones, or other similar aircraft, would be beneficial in conjunction with survey activities to periodically capture high resolution imagery and other spatial data that would enhance mapping of Direl and related spatial analyses, and should be encouraged. Similarly, use of remote sensing data such as LiDAR and multi-band satellite imagery can provide additional mapping benefits. The data outputs from these technologies can be used to examine and monitor for changes, for example to landforms and	Any time of the year / Ongoing	First 1–5 years and thereafter	All	Medium



Action	Strategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
	 vegetation coverage, assisting in ongoing assessments of land conditions at known locations of Aboriginal cultural heritage and other areas of cultural heritage sensitivity within Direl. There is also further potential for these technologies to aid in ecological studies, monitoring the health and impacts to the natural environment at Direl. Comparative analyses of such imagery and data over time and after major weather events would be a useful aid in determining areas requiring rehabilitation and would compliment ongoing assessments of the effectiveness of rehabilitation measures. Appropriate permits and permission must be obtained from the relevant authorities (i.e. Parks Victoria, DELWP, Mallee CMA) and landowners prior to operating UAVs at Direl. 				
2(k) Manage Aboriginal cultural heritage on Crown land	 Harming cultural heritage is unlawful under the Aboriginal Heritage Act 2006 (Part 3, Division 1). Information sessions should be held for government agency land managers and/or lease holders of Crown land within the boundaries of 'Direl' (VAHR 7427-0187). The aim of the information sessions will be to increase awareness of the responsibilities that land managers/lease holders have under the Aboriginal Heritage Act 2006, including information about cultural heritage management plans (CHMPs) and cultural heritage permits (CHPs), and when they are required. Unexpected discoveries of Aboriginal cultural heritage on Crown land by management agency staff and/or other persons associated with leasing/managing Crown land must be reported through the submission of a Preliminary Report form to the Secretary (FP-SR). 	Any time of the year	First 1 year	All	High



Action	Strategy and considerations	Recommended	Timeline of	Applicable	Priority
		time of year and frequency	implementation	Management Zones	, noncy
	 It is recognised that some land management agency staff may possess the skills and experience required to record and submit records of Aboriginal cultural heritage for registration to the VAHR, and where this is the case, they should be encouraged and supported. Discussions between the RAP (i.e. BGLCAC) and public land managers (i.e. DELWP and Parks Victoria) should be encouraged with respect to the formulation of an ACHLMA (see 10(a)). The above-mentioned information sessions and strategies should involve guidance and input from FP-SR and representatives from the RAP and Traditional Owner groups. Funding support to enable these and related strategies should be explored at different government levels. 				
2(I) Manage Aboriginal cultural heritage on private (freehold) land	 Owners/occupiers of land are entitled to continued use and enjoyment of the surface of the land they hold, even where an Aboriginal place is located (<i>Aboriginal Heritage Act 2006</i>, Part 2, Division 4), provided that the use and enjoyment of the land does not contravene section 27 or 28 of the Act in relation to harming Aboriginal cultural heritage. Harming cultural heritage is unlawful under the <i>Aboriginal Heritage Act 2006</i> (Part 3, Division 1, s.27 and s. 28). Education programs/information should be provided for local landowners and occupiers whose freehold land falls within the boundaries of 'Direl' (VAHR 7427-0187). The aim of the education programs will be to increase landholder understanding of Aboriginal heritage and their responsibilities under the <i>Aboriginal Heritage Act 2006</i>, including information 	Any time of the year	First 1 year	All – prioritising MZ3	High



Action	Strategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
	 about cultural heritage management plans (CHMPs) cultural heritage permits (CHPs), and when they are requit 4. Information should also include guidance on processes to a for the mandatory reporting of a discovery of Aboriginal culteritage (under s.24 of the <i>Aboriginal Heritage Act 2006</i> submission of a Preliminary Report form to the Secretar SR). This information should also explain the offence per for failure to report a discovery. 5. Education should aim to minimise the impact of agricultur land management activities on areas known to contain or sensitive for Aboriginal cultural heritage, including Anc Remains, e.g. 'warren ripping' is highly destructive to Abor cultural heritage and non-destructive alternatives shoul encouraged. 6. The above-mentioned education programs and strat should involve guidance and input from FP-SR representatives from the RAP and Traditional Owner grout 7. Funding support to enable these and related strategies s be explored at different government levels. 	and red. follow ultural j, e.g. y (FP- nalties al and to be esstral riginal uld be tegies and ips. hould			
3. Land and	Fitles				
3(a) Mineral extraction and prospection	 Mineral prospecting/extractive industries constitute a activity at Direl. There should be ongoing engagement Cheetham Salt and/or any future operators to ensure that processes continue to be followed and Aboriginal culteritage is protected/harm avoided (see 2(k)). Possible future licences, beyond the current areas work Cheetham Salt, should be carefully considered before decare made in relation to potential impacts to Aboriginal culture made in context. 	major Any time of the with year / Ongoing at due ultural ed by isions ultural	First 5 years and thereafter	All	Low


Action	Strategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
	 heritage and cultural values of the place, heritage and values. It is recommended that the Earth Re authority for Victoria consults with the RAF groups, and FP-SR when considering any fumining industry proposals at Direl (Lake exploration and prospecting activities. A review of controls pertaining to the export materials specifically from Lake Tyrrell showith a consideration of the cultural significat Aboriginal cultural heritage contained withing 	including intangible sources Regulation 7, Traditional Owner uture extractive and r Tyrrell), including rt of earth resource ould be undertaken nce of Direl and the n the place extent.			
3(b) Consider land acquisitions of freehold land that may become available on the open market for parcels known to contain Aboriginal cultural heritage	 Acquisition of culturally significant freeho within or are related to the 'Direl' (VAHI extent that become available for sale should purchase of freehold land by government be ensure the protection of Aboriginal cultur (e.g. through land rehabilitation programs) outside the responsibility of public land mas support the integrated management of Di cultural heritage landscape. Parcels which fall within the extent of Direviable for farming or grazing should also be Funding sources for potential land acq explored in partnership with the RAP and groups where applicable. 	Any time of the year A parcels that fall R 7427-0187) place year A be considered. The odies would help to ral heritage at Direl that currently falls anagers. This would rel as an Aboriginal I that are no longer considered. uisition should be I Traditional Owner	First 5 years and thereafter	All	Medium
4. Erosion C	ntrol				



Action	Stratogy and considerations	Perommonded	Timolino of	Applicable	Driority
ACTION	Strategy and considerations	time of year	implementation	Applicable	Phoney
		time of year	implementation	Zenee	
		and frequency		Zones	
4(a) Plant	1. Revegetation of areas of Direl may help protect against erosion,	Pending further	First 1–5 years	All	High
stabilising	increase the cultural heritage significance of the Place, improve	investigation	and thereafter		U
native	the aesthetic values, and contribute to healthy Country. It also	(likelv autumn			
vegetation	supports biodiversity and increases ecological values.	through to			
-0	2. Revegetation via the planting of appropriate native plants to	spring, not			
	stabilise the eroding lunettes and landforms associated with the	summer)			
	lake is recommended and should occur especially in exposed	,			
	and actively eroding sections (e.g. MZ1, MZ2, MZ3, MZ4).				
	3. This action requires further investigation and consultation with				
	relevant professionals (i.e. ecologists, environmental scientists)				
	before proceeding, to establish appropriate planting regimes				
	that maximise erosion control, while contributing to a healthy				
	ecosystem (see Table 13, Actions 2(b) and 2(c)). Consideration				
	of invasive plant control should also be included in the				
	investigation (Table 13, Action 2(e)).				
	4. Representatives from the RAP and Traditional Owner groups				
	must be engaged in these activities.				
	5. Revegetation programs should also be guided by ongoing				
	review of environmental conditions at Lake Tyrrell.				
	6. Liaison and collaboration with local Landcare groups and land				
	managers—including private landholders—may also be				
	required.				
	7. Where applicable, permission and/or an agreement with				
	relevant landowners/occupiers to access freehold land and				
	carry out the measures must be sought prior to commencing				
	this activity.				
	8. See Table 13 (Action 2(a)) for details regarding recommended				
	further investigations.				



Action	Strategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
	 A Heritage Advisor must be engaged, and a Cultural Heritage Permit must be obtained from FP-SR to undertake this fieldwork activity. Funding support to enable land rehabilitation strategies should be explored at different government levels, including potential linkage with Mallee CMA's 'Tyrrell Project'. 				
4(b) Maintain revegetation projects	 Maintenance and care (e.g. watering) of newly planted vegetation may be necessary during establishment stage. This maintenance may be undertaken in association with the RAP, Traditional Owner groups, and the relevant land managers (pending consultation and funding). Ongoing monitoring of the effectiveness of revegetation projects will be necessary. 	Pending further investigation. Ongoing (until plants are established)	First 1–5 years and thereafter	All	Medium
4(c) Erosion control measures	 Further investigations are needed to identify immediate and effective erosion control methods for specific areas where erosion issues are critical (e.g. MZ3 and MZ4) (see Table 13, Action 3(a)). Collaboration between all land/water manager/owner stakeholders and representatives of the RAP and Traditional Owner groups is recommended before undertaking investigations or works. A Heritage Advisor must be engaged, and a Cultural Heritage Permit must be obtained from FP-SR to undertake this fieldwork activity. 	Any time of the year / Ongoing	First 1–3 years	All	High



Action	Strategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
4(d) Supporting Landcare groups	 Implementing appropriate erosion control strategies will require close collaboration between Landcare groups, the RAP, Traditional Owner groups, and land/water managers (e.g. DELWP, Parks Victoria, Mallee CMA, private landholders). Funding from council/government should be considered to establish and support Landcare groups at Direl. Potential linkage with Mallee CMA's 'Tyrrell Project' should be explored. 	Any time of the year / Ongoing	First 1–5 years	All	Low
5. Pest Cont	rol - Faunal				
5(a) Pest control measures	 Pest control measures should be implemented at Direl for introduced feral species such as rabbits, which have impacted culturally sensitive landforms and actively contribute to vegetation loss and erosion around the lake. Further investigations are needed to identify immediate and effective control/eradication methods (see Table 13, Action 2(d)). Non-destructive measures (e.g. biological) should be considered where possible, especially in highly sensitive areas for cultural heritage. Investigations should involve relevant professionals (i.e. ecologists, environmental scientists) and the RAP and Traditional Owner groups to advise on the appropriateness of methods in culturally significant and sensitive areas at Direl. Implementing appropriate control/eradication strategies will require close collaboration between land/water managers (e.g. DELWP, Parks Victoria, Mallee CMA, private landholders), FP-SR, the RAP, and Traditional Owner groups. 	Pending further investigation (Likely any time of the year)	First 1–5 years and thereafter	All	High



Action	Stı	rategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
	5. 6. 7.	Where applicable, permission and/or an agreement with relevant landowners/occupiers to access freehold land and carry out the measures must be sought prior to commencing this activity. Depending on the proposed method(s) for control/eradication, a Cultural Heritage Permit may be required from FP-SR to undertake this fieldwork activity. Funding support to enable pest control strategies should be explored at different government levels, including potential linkage with Mallee CMA's 'Tyrrell Project'.				
6. Public Us	е					
6(a) Monitoring of recreational and public use at Direl	 1. 2. 3. 	There is limited information available about recreational and public use of Direl, and how people access and utilise the area beyond the activities described in this report. Many of the unmonitored recreational activities currently occurring at Direl, such as unregulated vehicle access, are inappropriate and are directly contributing to the degradation of the cultural and heritage values at Direl. Additionally, unregulated foot traffic in highly frequented access points has had a negative impact on vegetation leading to loss of habitat and the risk of erosion. Further data on the nature and type of recreational activities practiced at Direl are critical in formulating more specific and appropriate management requirements. This investigation should take into account the public and recreational use of Direl in relation to the nature, extent, and location of Aboriginal cultural heritage material and culturally sensitive areas around Direl.	Any time of the year / Cyclical / Pending further investigation	First 1–3 years and thereafter	All	Low



Action	Strategy and considerations	Recommended	Timeline of	Applicable	Priority
		time of year and frequency	implementation	Management Zones	,
	 A general lack of appropriate access points, lack of facilities, and poor signage (see also 1(c)) all contribute to unauthorised and/or unrestricted public access to Direl. Defining appropriate areas for recreational use, and provisioning appropriate recreational access point(s), as well as associated facilities (pending community consultation) is key in the monitoring and management of recreational use of the lake. Through collaboration with the RAP and Traditional Owner groups, culturally appropriate forms of recreational use may be provisioned for Direl. Evidence of illegal camping activities was observed, and monitoring of these activities is required to reduce the risk of potential harm to Aboriginal cultural heritage places/components, and to retain the cultural heritage values of Direl Place. Alternative authorised camping locations may be considered in the future, pending further investigation. A CHMP will be required for any camping ground facilities as per s.46(1)(ii) of the <i>Aboriginal Heritage Regulations 2018</i>. Future proposals for developments and/or infrastructure around the lake or in nearby towns to cater for the public/tourists should consider the potential impacts of light pollution upon the intangible heritage aspects of Direl. 				
7. Dumped	Waste Removal and Monitoring				
7(a) Remove dumped waste	1. Illegally dumped waste/rubbish is present within Direl. Waste mainly consists of materials related to the Mallee Rally (e.g.	Any time of the year	First 1–3 years	All	Low
1					



Action St	trategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
2. 3. 4. 5. 6. 7. 8.	 tyres, car parts, water drums etc.) and tourist visits (e.g. gumboots, broken bottles, various plastics). Waste/rubbish removal contributes to a healthy ecosystem and Country; can promote respect of the landscape; and contributes to the overall aesthetic and cultural significance of the Place. Controls on the import of earth resource materials to Lake Tyrrell should be established. As with dumped waste, imported materials, such as road base or soils, have the potential to contaminate the environment and detract from the aesthetic qualities of Direl. Further investigations are required to locate and record areas which currently contain dumped waste/rubbish (see Table 13, Action 4(a)). Following a survey, dumped waste/rubbish should be appropriately removed from all areas of Direl, provided that it is not historical in nature (see below). Waste/rubbish should be inspected for dangerous substances (e.g. asbestos) and removed safely with appropriate containment controls by specialist waste management agencies. Collaboration with the RAP and Traditional Owner groups where applicable must occur. A Cultural Heritage Permit must be obtained from FP-SR if proposed waste removal works will harm Aboriginal cultural heritage. It is possible that some dumped waste may be historical in nature and this distinction is important to recognise, especially considering possible post-contact interactions with Aboriginal people. Historical archaeological sites comprising artefact 				



Action	Strategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority				
	scatters/refuse deposits and/or features (i.e. containing or composed of materials 75 or more years old) are likely to be present at Direl and are protected by the <i>Heritage Act 2017</i> (Victoria). Prior to survey, a Notice to Survey (NOI) must also be lodged with Heritage Victoria (HV). Follow-up and further consultation with HV should take place, to determine what site registrations, documentation, and/or heritage consents may be required for managing historical sites at Direl.								
7(b) Monitor and remove dumped waste in the future	 Following initial waste removal efforts, regular (e.g. twice yearly; see 7(a)) monitoring for newly dumped waste/rubbish is recommended. More multilingual signage should be installed to deter the informal and illegal dumping of waste/rubbish, with penalties established. Newly dumped waste/rubbish should be removed promptly and safely with appropriate containment controls. 	Any time of the year / Cyclical / Ongoing	First 1–5 years and thereafter	All	Low				
8. Fencing li	nstallation and Maintenance								
8(a) Install fencing along Crown land boundaries to mitigate unregulated access to Direl	 Where possible, fencing (stock exclusion type) should be installed along the perimeter of all Crown land at Direl to improve the delineation of boundaries, prevent unauthorised tourist access to private property, and to help mitigate unregulated access to the lake. Updated Crown land surveys may be required in some areas to accurately determine the Crown land cadastral boundaries before fencing installation occurs. In areas where the Crown land boundaries are not clear, it may be necessary to carry out re-marking survey to re-establish a 	Any time of the year / One off	First 1–3 years	All	Low				



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Action	Strategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
	 boundary and/or negotiate a new boundary including a set back with private landholders to enable clear management of Direl. Fencing needs to be constructed to the appropriate standard to prevent livestock breaches. When designing fencing, it is important to be mindful of allowing free movement of native wildlife. Consideration needs to be given to who will be responsible for ongoing maintenance and repair of fencing. Difficulties in installing permanent or long-term fencing due to the accelerated erosion caused by salt have been raised by the local community and Cheetham Salt. Consultation with identified stakeholders including Parks Victoria, Mallee CMA, DELWP, adjoining landholders, the RAP, and Traditional Owner groups should occur. A Heritage Advisor must be engaged, and a Cultural Heritage Permit must be obtained from FP-SR before fence installation works occur and should also consider future maintenance and 				
9. Park Rang	er				



Action	Strate	gy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
9(a) Employ a Park Ranger to oversee the management of Direl and the implementation of strategies	 A f mc The Incentration Clocentration Clocentratio	full-time Park Ranger should be employed to oversee and onitor the ongoing management of Direl (Lake Tyrrell). Here should be a consideration of the position as a dedicated digenous role(s) and Traditional Owners should be strongly accouraged to apply for any ranger positions that are made ailable. Dose collaboration and ongoing engagement with the RAP and e relevant Traditional Owner groups should be a crucial and agoing part of the role. number of the strategies listed above, such as those that volve re-inspecting places/components and monitoring habilitation programs (e.g. 2(e-i), 4(b) and 7(b)) would benefit eatly from the presence of a full-time ranger and would allow r more frequent place inspections and surveys to occur.	Any time of the year / One off	First 1–3 years	All	High
10. Aborigina	l Cultura	al Heritage Land Management Agreement (ACHLMA)				
10(a) ACHLMA between RAP and public land manager	 Discover matcover to the An recover fra matcover 	scussions involving the BGLCAC, as appointed RAP for the area vering the southwest of Lake Tyrrell, and public land anagers (i.e. DELWP and Parks Victoria) should be encouraged explore the feasibility of establishing an ACHLMA between e two parties. ACHLMA would be beneficial to land management quirements in MZ5, as it provides a mutually agreed amework between the parties involved for protecting and anaging Aboriginal cultural heritage on Crown land during agoing, routine land management activities within a RAP area.	Any time of the year / One off	First 1–3 years	MZ5	Medium



Action	Strategy and considerations	Recommended time of year and frequency	Timeline of implementation	Applicable Management Zones	Priority
	3. There is potential for this type of engagement to become a model for other areas around the lake, if in future other Traditional Owner groups become a RAP for areas that cover Crown land bordering Lake Tyrrell.				





6.2 RECOMMENDED FURTHER INVESTIGATIONS

Some of the research questions stemming from the CMP that could be considered in future studies include:

- What is the condition of previously recorded Aboriginal places that could not be located and/or inspected during the CMP due to project limitations?
- How accurate is the location and extent information of earlier registrations of Aboriginal places, and how might this affect our understanding of specific culturally sensitive landforms within Direl?
- What is the state and condition of the ecology at Direl and how are species—including endangered species—being impacted by activities conducted around the lake?
- How can threats to ecosystems at Direl be counteracted and managed into the future?
- In order to combat erosion, what revegetation strategies will be appropriate and most effective at Direl?
- How can the health of ecosystems be improved at Direl?
- What culturally appropriate methods can be implemented to control and eradicate plant and animal pest species?
- How can we better protect and maintain both tangible and intangible cultural material and values at Direl?

A number of recommendations for further investigation at Direl are given in Table 13.



Action	Strategy and considerations	Management Zones	Priority
1. Aboriginal Cul	tural Heritage		
1(a) Thoroughly re- survey Direl	 Further intensive archaeological survey of the entirety of Direl is recommended. While the priority should be to survey previously unsurveyed areas, this should also include the resurveying of areas that have been previously inspected or surveyed, and assessing and recording additional Place components. The recorded locations of some existing places on the VAHR may be inaccurate and their primary grid coordinates should be updated where possible to provide a more accurate understanding of the distribution of previously recorded Aboriginal cultural heritage. Details are outlined in Table 12. It is recommended that survey take place during cooler months (approx. April–October) for favourable weather conditions. The effects of vegetation on ground surface visibility should also be considered when planning surveys. Further pedestrian survey is also recommended in sample areas within vegetated parts of each of the Management Zones identified in this report. Where possible, additional survey should incorporate freehold and leasehold land as well as any applicable licensed land on the eastern lunettes, much of which has not been surveyed previously. The RAP and Traditional Owner group representatives must be involved in the field survey. A Heritage Advisor must be engaged, and a Cultural Heritage Permit must be obtained from FP-SR to undertake this fieldwork activity. The Heritage Advisor must submit a Notice of Intent (NOI) to carry out a survey for Aboriginal cultural heritage (under the <i>Aboriginal Heritage Act 2006</i>) to the Victorian Aboriginal Heritage Register (VAHR) prior to the fieldwork component. Survey methodology and recording should be devised according to FP-SR practice guidelines and standards e.g. <i>Standards for Recording Victorian Aboriginal Heritage Places and Objects and Information Sheet: Surveys for Aboriginal Cultural Heritage.</i> 	All, prioritising MZ1	High

Table 13: Recommendations for further investigation at Direl.



Action	Strategy and considerations	Management Zones	Priority		
2. Ecological Studies					
2(a) Undertake revegetation using appropriate plant species	 Erosion at Direl is a significant issue and in some instances has severely impacted the eastern lunette dune and sections of the shoreline, which are subsequently devoid of vegetation. Severe erosion impacts area also evident along the western shoreline and across significant landforms, such as terraces, peninsulas, and promontories. Appropriate native vegetation can stabilise the shoreline and other impacted areas, which may protect both recorded and undocumented Aboriginal cultural heritage occurring throughout Direl. Maintaining the health of Country is vitally important to the RAP and Traditional Owner groups and has wide-reaching benefits. Further investigations by an appropriately qualified investigator (e.g. an ecologist and/or environmental scientist) is recommended to provide information on appropriate stabilising plant species for shoreline areas, the lunettes, and other landforms within Direl. Collaboration with the RAP and relevant Traditional Owner groups must occur. A Heritage Advisor must be engaged, and a Cultural Heritage Permit must be obtained from FP-SR before any works can occur. 	All	High		
2(b) Improve ecological health of Direl following investigation of the extent of environmental damage	 Non-Aboriginal settlement at Direl (land clearing, agriculture, irrigation etc.) has greatly impacted the local environment, contributing to salinity and erosion. Ecological studies are required to establish the extent of environmental damage at the lake. Ecological investigations should also recommend methods to address environmental damage, and ways of improving the overall ecological health of Direl that speak to preserving the environmental and cultural significance of the Place. 	All	Low		
2(c) Monitoring the health of existing ecology	 The existing species at Direl should be identified and monitored by an appropriate specialist (e.g. a qualified ecologist). An ecological investigation and assessment will be especially important concerning endangered species at Direl. 	All	High		



Action	Strategy and considerations	Management Zones	Priority
	 The scope of this assessment should also consider and inspect the islands within the lake body. These more isolated landforms may contain Indigenous plant and animal communities which could greatly inform revegetation and repopulation of Direl with endemic plants and animals. The impacts of the specific issues outlined in Section 4 on the ecology at Direl should be thoroughly investigated by an appropriate specialist (e.g. a qualified ecologist). The extent of vegetated areas and habitats should be monitored over time (e.g. on a yearly basis) to monitor the effectiveness of revegetation programs and the regeneration of native vegetation. This may be aided using technological means including remote sensing, drone- acquired aerial imagery, and wildlife surveillance cameras. 		
2(d) Reduce/eradicate faunal pests at Direl	 Archaeological field survey at Direl located areas of significant disturbance caused by pest animals (primarily rabbits). The extensive environmental damage by pest animals at Direl included ground disturbance (e.g. erosion, burrowing) which has the potential to directly impact Aboriginal cultural heritage. Rabbit burrows were visible within the eastern lunette and western terraces, demonstrating the high level of damage inflicted by pests to some of the culturally sensitive landforms. Further investigations are required to determine the best method of pest control and eradication to mitigate damage to Aboriginal cultural heritage at Direl. Once appropriate methods are determined, pest eradication should occur at Direl and a regular program of monitoring should be implemented. A Cultural Heritage Permit issued by FP-SR may be required depending on the proposed method. Potential linkage with Mallee CMA's 'Tyrrell Project' should be explored. 	All	High
2(e) Reduce/eradicate invasive plants at Direl	 Recommendations for the management (and/or removal) of invasive plants/weeds at Direl by an appropriately qualified expert (such as an ecologist) are required. The potential impact of invasive plant removal on Aboriginal cultural heritage should be investigated, and collaboration with the RAP and Traditional Owner groups should occur. 	All	Medium



Action	Strategy and considerations	Management Zones	Priority
	 A Heritage Advisor must be engaged, and a Cultural Heritage Permit must be obtained from FP-SR for this activity, unless it forms the basis of a clause contained within an ACHLMA between the RAP and public land mangers. Potential linkage with Mallee CMA's 'Tyrrell Project' should be explored. 		
3. Erosion Contro	bl		
3(a) Implement appropriate erosion control strategies	 Erosion resulting from vegetation loss and ground disturbance to landforms was identified as a significant issue at Direl along the Mallee Rally track, other vehicle tracks, along the eastern lunettes, across the western terraces, and across the western peninsula and needs to be addressed immediately. Further investigations are required to determine how best to mitigate water and wind erosion at specific areas within Direl. Consultation should occur with the relevant stakeholders and environmental specialists to determine appropriate erosion control methods. Target areas should include areas where erosion is directly impacting Aboriginal cultural heritage places/components and culturally sensitive areas, i.e. the eastern lunette, western terraces and peninsula, disused access tracks, and the Mallee Rally track (where appropriate). Collaboration with the RAP and Traditional Owner groups and Heritage Advisor(s) must occur. A Cultural Heritage Permit issued by FP-SR, or an approved Cultural Heritage Management Plan (depending on the nature of works) may be required before any works can occur. Alternatively, this strategy could be managed under an ACHLMA established between a RAP and public land mangers (where applicable). 	All	High
4. Dumped Wast	re/Rubbish Removal		
4(a) Determine the location of dumped waste/rubbish and implement safe removal of waste	 Investigations are required to determine how to best proceed with the safe removal of dumped waste, especially any dangerous or toxic items (e.g. asbestos) that may be found within Direl. Much of the waste/rubbish located during survey comprised materials related to old fencing, farming activities, and the Mallee Rally event. 	All	Medium



Action	Strategy and considerations	Management Zones	Priority
	 Further ground survey is required to document the location and type of dumped waste/rubbish before proceeding with the removal. A specific survey for historical heritage should occur throughout Direl and deposits/features of a historical nature must be identified and managed separately through consultation with Heritage Victoria. Site registrations, documentation, and/or heritage consents may be required for historical archaeological scatters and features. Waste should be removed from the area by specialist waste management agencies, especially in the case of large, dangerous, or toxic items. Negotiation for access requirements may need to be held between private landowners, in consultation with relevant agencies. A Heritage Advisor must be engaged, and a Cultural Heritage Permit must be obtained from FP-SR if proposed waste removal works will harm Aboriginal cultural heritage. Collaboration with the RAP and Traditional Owner groups must occur where required. 		





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Water Industry Act 1994





7 APPENDIX 1 – DIREL SIGNIFICANCE STATEMENT

Source: Aboriginal place record for 'Direl' (VAHR 7427-0187) – Attachement 4, produced by Cooper Heritage Management and On Country Heritage & Consulting. Reproduced here with permission from BGLCAC.

Direl – Significance Statement

Direl is a highly significant cultural place. To the Traditional Owners of Direl, including the Wotjobaluk, Jaadwa, Jadawadjali, Wergaia, and Jupagulk Peoples (referred to collectively in this document as the Wotjobaluk Peoples), this Place is an intrinsic part of their cultural and spiritual identity and forms an ongoing connection to their ancestors and past traditions. The significance of Direl is also recognised by non-Indigenous communities for its aesthetic, scientific, cultural, and social values.

The cultural, spiritual, and social values associated with Direl are tightly interwoven and are difficult to view individually. Rather they form an interconnected narrative which transcend European notions of place and time.. At the forefront of these are the spiritual values associated with the Creation Stories and the ceremonies related to these narratives. Not only are these Creation stories the basis for the belief system of Aboriginal people, they guide the rules in which the descendants of those ancestors speak of and live by; a belief system that is still prevalent today. Direl is of very high spiritual significance as it is a place where many of these Creation stories reside, amongst the stars and constellations of the night sky.

The Creation Stories that reside in the stars and constellations over Direl have shaped and informed the social and cultural identity of the Wotjobaluk Peoples who continue to recount and pass on the knowledge of these stories from generation to generation. Direl is of particular social and cultural significance, not only to the descendants of the Wotjobaluk Peoples, but also to all language groups across the state of Victoria who also have spiritual links to these Creation Stories. Many of the Creation Stories observed in the stars and constellations over Direl have a direct connection to other spiritually and culturally significant Places throughout the region.

An example of this is *Wopet-bungundilar*, also known as 'House of Feathers', or as its literal translation from Jadawadjali to English, 'Place of Feathers'. This is a culturally significant Place near Horsham where the giant emu (*Tyingal* – pronounced *Tchin-gal*) died after having been fatally wounded from spears thrown by the Bram-bram-bult brothers. All modem emus were created at this place when the brothers split and separated Tyingals feathers in to two equal piles. *Wopet-bungundilar* is one of the central stages within the Tyingal Creation Story, and just as Direl, is a central stage within other Creation Stories. Direl is linked to the Tyingal Creation Story because Tyingal resided in the Mallee scrub and created its egg there.

Direl is linked to all other Creation Stories in the region because it is the place where the Dreamtime events on earth transcended space and time and entered the cosmos. The relationship between the earth and the sky, place and people, time and space, was symbolically expressed through the ceremonies and rituals that were undertaken at Direl. The binary structure of these elements was also expressed symbolically and physically at Direl where the sky is reflected in the still shallow salt ponds, appearing to be within the earth. The Dreamtime events are shown in the stars and constellations, which are also reflected in the earth; by standing in the right place at the right time of year at Direl, the cosmos and the Dreamtime are reflected all around you. This connectivity is the reason that this Place has a higher level of cultural and spiritual significance than other places that are central stages within Creation Stories.







Changes observed in the constellations served as signals for the Boorong and other neighbouring clans and language groups that preparation for important cultural events and ceremonies had arrived. This often triggered a journey to the north, towards the Murray River, where large gatherings hosting neighbouring clans and language groups were conducted. These kinship connections are still revered and honoured today, forming an integral part of the Wotjobaluk Peoples descendants' social identity.

Interwoven into the cultural and social significance of Direl are the historical connections the Wotjobaluk Peoples have with the Place. The historical record has shown that European contact in Victoria was particularly violent and had devastating effects on Aboriginal people, including attempts to supress traditional practices and customs. While this saw a loss of knowledge and traditional custom in some parts of Victoria, the Wotjobaluk People have continued and maintained their traditional cultural connections to Direl after European contact and into the present day (Aunty Jenny Beer pers. comm. 29 January 2018).

Following colonisation, many *Wotjobaluk* People were moved on to Ebenezer Mission and surrounding pastoral stations, causing widespread disruption of traditional Aboriginal land management practices, movement across Country, and fulfilment of religious duties. Despite this, the *Wotjobaluk* Peoples continued to use traditional travelling, trade and ceremonial routes across *Wergaia* and *Jadawadjali* Country, maintaining their connection to the area(Darren Griffin pers. comm. 29 January 2018). *Wotjobaluk* people were able to continue their cultural practices and fulfil their religious responsibilities along the travel routes from *Barringgi Gadyin* (Wimmera River) to *Direl*, and at *Direl* itself, by moving between mission reserves to visit family members and for work (they required formal permission from the missionaries to leave Ebenezer) (ibid).

Evidence of this has been passed on through inter-generational narratives and in the living memory of descendants of the Wotjobaluk Peoples. Aunty Jenni Beer, (a member of the Kennedy family group and Director on the BGLC Board), remembers when she was young that her uncle, Everard Kennedy (known as Uncle Nuck, which means 'my' in *Wergaia* language), would work on the salt harvesting at Lake Tyrrell (pers. comm. 29 January 2018). He lived at the fringe camp at Antwerp and would follow the traditional travelling / trade / ceremonial routes from there to Lake Tyrrell for seasonal work. He would stop at Goyura, south of Hopetoun, which is one of the traditional meeting places along the route. Aunty Jenni Beer also remembers when she was young and living at Antwerp that one of the *Wotjobaluk* families owned a horse and buggy and this was used to take all the *Wotjobaluk* community on trips around Country along travelling / trade / ceremonial routes, visiting important places and sacred sites and learning their cultural traditions (ibid).

During the archaeological investigation conducted as part of the Complex Assessment, a ceramic geometric microlith was identified providing additional evidence of continued traditional customs in the practice of traditional knapping techniques. While only a single artefact has been identified so far, this rare find is just another example of the continuation of traditional customs and practices well after European contact. Further investigation of the wider extent of Direl may uncover additional artefacts to support the continued use of traditional cultural practices. These memories and historical connections further highlight the cultural, spiritual, and social significance of Direl to the Wotjobaluk Peoples and as such, the historical significance of Direl is considered to be high.







It is this potential for further research that makes Direl of very high scientific value and considered to be of state significance. Excavations conducted at Box Gully, along the northeast margins of the lake, have proven the occupation of the Victorian Mallee region pre-Last Glacial Maximum (LGM). This is not only scientifically significant in understanding Aboriginal occupation in what has generally been considered a harsh environment and therefore unlikely to be inhabited in times of diminished resources (Ross 1992), but is the first documented evidence of occupation south of the Murray River and north of Tasmania prior to 30,000 years BP (Richard et al 2007).

The excavations at Box Gully have shown that Direl is part of a broader pattern of Pleistocene occupation of the southern end of the Murray River region. From around 35,000 years BP to around 26,500 years BP, we see the short-term, repeated occupation of inland lakes such as Direl, and Lake Mungo and Lake Tandou (which form part of the Willandra Lakes System), characterised by the presence of hearths and oven features (Balme and Hope 1990; Bowler 1998; Gillespie 1998; Walshe 1998; Richard et al 2007). Evidence for occupation around these lakes becomes scarce from around 25,000 years BP to 20,000 years BP. It is during this period that we see a shift in occupation from these lakes to the Murray River where large fresh water middens, instead of hearths and oven features, dominate the archaeological record such as those recorded at Karadoc Swamp (Luebbers 1995), Merbein Common (Coutts 1977; Williams 1998), and Monak Midden (Edmonds 1997). There is also a shift towards the highlands with evidence of initial occupation of rockshelters such as Drual and Bilimina Rockshelters in Gariwerd, which have occupation dates of around 22,000 years BP (Bird et al 1998; Bird and Frankel 2005), and New Guinea II Cave in Gippsland where evidence of occupation was dated to almost 20,000 years BP (Ossa et al 1995). After around 20,000 years BP, there is a movement back towards the lakes with occupation resuming again at the Willandra Lakes region (Balme and Hope 1990; Bowler 1998; Gillespie 1998).

There is no evidence for occupation of Direl after 26,600 years BP until well into the Holocene (Nichols 2002; Richards and Webber 2004). This poses the question as to why Aboriginal people did not return to Direl after the LGM, when changes to seasonal precipitation and contributions from groundwater would have seen lake levels increase (Hesse et al 2004). This can perhaps be attributed to a lack of available data for the occupation sequence of Direl. Since the excavations at Box Gully, there has been no published data on further archaeological investigations being undertaken in the area.

The abundance of archaeological places already registered at Direl have extremely high research potential to contribute to developing an occupation sequence for this region. This is further heightened by the intact and relatively undisturbed nature of some of these places.

The research potential of Direl is not only confined to questions of occupation sequences but can be used in a multitude of comparative studies, such as mapping trade routes and







Direl is also considered to have high aesthetic significance. While Direl is dry most of the year, when water is present within the lake, its natural beauty is amplified by the pink waters created from the red pigment secreted by the micro-algae phytoplankton and by the reflective properties of the water that mirror the night's sky. This is evident in the thousands of people that come to visit the "mirrored" lake that reflects the skies above in its waters. But aesthetic value is more than just being visually appealing; aesthetics can also be about the feeling that a place invokes and its distinctiveness in the landscape. It is clear that Direl meets both these aspects as well. As one of the largest salt lakes in northwest Victoria, Direl is profound and distinctive with its eastern dune ridgeline; a prominent marker within the largely flat Mallee landscape. While there are other salt lakes within the Victorian Mallee region, the concentration of archaeological sites at this place suggests that people were drawn here. Perhaps it was more than just the resources available or that the stars reflected in the water, perhaps it was just the feelings and emotions that Direl invokes in all who came here. After being in the presence of Direl, it is not hard to understand why this might be; standing on the sandy dunes that line the lake, looking over the great 'sea' so far from the coast, Direl certainly invokes a feeling of awe and wonder. The Aboriginal ancestors that once stood here must also have felt this surrounded by the cosmos and the Dreamtime reflected all around them.

It is the Place's spiritual, cultural, social, and scientific values that makes Direl unique and highlights its significance as a place of meaning. Direl is a place where Creation Stories and the cultural knowledge they held were ritually re-enacted and elucidated, where the Dreamtime was viewed and experienced in the night sky and the reflections of the lake, where people's place within the Universe was understood, a place where ceremonies and traditions were passed down from generation to generation, a place where the stars and constellations guided the movements and lore in which the Boorong and other Wergaia clans lived by, and a place where the antiquity of Aboriginal occupation is indisputable.







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