Musgrave Subregional Description

Landscape Plan for Eyre Peninsula - Appendix D

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LANDSCAPE SOUTH AUSTRALIA EYRE PENINSULA

The Musgrave subregion extends from Mount Camel Beach in the north inland to the Tod Highway, and then south to Lock and then west across to Lake Hamilton in the south. It includes the Southern Ocean including the Investigator Group, Flinders Island and Pearson Isles.

QUICK STATS

Population: Approximately 1,050

Major towns (population): Elliston (300), Lock (340)

Traditional Owners: Nauo and Wirangu nations

Local Governments: District Council of Elliston, District Council of Lower Eyre Peninsula and Wudinna District Council

Land Area: Approximately 5,600 square kilometres

Main land uses (% of land area): Grazing (30% of total land area), conservation (20% of land area), cropping (18% of land area)

Main industries: Agriculture, health care, education

Annual Rainfall: 380 - 430mm

Highest Elevation: Mount Wedge (249 metres AHD)

Coastline length: 130 kilometres (excludes islands)

Number of Islands: 12

Musgrave

What's valued in Musgrave

The landscapes and natural resources of the Musgrave subregion are integral to the community's livelihoods and lifestyles.

The coast is enjoyed by locals and visitors for its beautiful landscapes, open space and clean environment. Many local residents particularly value the solitude, remoteness and scenic beauty of places including Sheringa Beach, Talia Caves, Point Drummond, Kiana, Pearson Island, Walker's Rock and Elliston. Surfing, camping, diving and fishing are popular in the clean waters.

The Elliston township is valued for its character, history, tranquillity and amenity. The town has a strong arts culture with numerous murals and the sculptures along the spectacular Great Ocean Tourist Drive.

Pearson Island is a spectacular unspoilt island with abundant and curious wildlife.

The Musgrave subregion values landscapes include large patches of remnant bush and big farms. Native vegetation is valued by many in the farming community and many recognise its contribution to ecosystem services, and that it provides habitat for birds and reptiles. The benefits of native grasses are recognised for their biodiversity value as well as their ability to use for stock feed during drought.

The Conservation Parks of Bascombe Well and Kulliparu are valued by locals and visitors who enjoy observing the rich bird life and range of wildflowers including rare orchids. Ucontitchie Hill and its unique geology is a

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Figure 1 – Map of Musgrave subregion

distinctive feature and tourist attraction.

Groundwater and wetlands are valued features of the Musgrave subregion's ecological and economic function. Large wetlands like Lake Newland and Lake Hamilton support abundant bird life, particularly during wet periods. These lakes are dependent upon the groundwater of the Musgrave Prescribed Wells Area.

> *Natural resource management is about people and the community taking responsibility for their patch, and doing things to maintain or improve it.*

Most of the community relies on freshwater from the Polda, Sheringa and Bramfield groundwater basins for stock and domestic, town supplies and small areas of irrigation. These basins also support valued groundwater dependent ecosystems including red gums.

The Musgrave subregion has a great and connected small community. They understand that successful landscape management requires people working together and creating networks.

Landscapes and Seascapes

The Musgrave subregion comprises a land area of around 5,600 square kilometres, extending from Mount Camel Beach in the north, inland to the Tod Highway, to Lock and Lake Hamilton in the south. It extends west to the Southern Ocean to the Investigator Group including Flinders Island and Pearson Isles.

Musgrave experiences a Mediterranean climate with cool wet winters and hot dry summers. Rainfall is winter dominant and average annual rainfall ranges from about 380 – 440mm, with higher rainfall recorded in the southern coastal parts of the subregion.

The majority of soils across inland areas of the Musgrave subregion are classified as shallow sandy loam on calcrete that predominantly support grazing or conservation. Around Lock, calcareous loams are widespread, and cropping is undertaken. Closer to the coast, carbonate sands and calcareous sandy loams support areas of cropping.

The central Musgrave landscape comprises undulating to hilly plains on calcrete with Mount Wedge (249m) the highest point in the subregion. Through most of the inland areas, the large areas of remnant mallee woodlands are dominated by Mallee Box (*Eucalyptus porosa*) and Coastal White Mallee (*Eucalyptus diversifolia*). In the north and east around Lock, sand ridges run north-west to south-east. Most native vegetation has been cleared around Lock for cropping however in the northern areas, large patches of mallee remain.

Large areas of native grassland dominated by Spear-grass (*Austrostpia* sp.) replaced by introduced pasture species across much of the rest of Eyre Peninsula, remain in the Musgrave subregion, providing habitat for a diversity of invertebrates and birds. These grasslands are more commonly found on shallow sandy loams on calcrete through the centre of the subregion.

Along the coast, in dune areas and around Lake Newland and the coastal lakes, the most common vegetation communities include Samphire (*Tecticornia* spp. and *Sarcocornia* spp) and shrublands dominated by Coast daisy (*Olearia axillaris*) and Grey saltbush (*Atriplex cinerea*).

Just over 10% of the subregion's land area is within National Parks and Wildlife Reserves, including Lake Newland, Bascombe Well, Barwell and Cocata Conservation Parks. Offshore conservation areas include the Waldegrave Islands Conservation Park and Investigator Group Wilderness Area. Much of the coast south of Elliston and around the islands is protected within the Investigator Marine Park.

Musgrave's coastal landscapes are dominated by sandy beaches along the coast north of Cape Finniss along Anxious Bay, and cliffs up to 80m high south of Elliston. The offshore islands have similar coast, with steep rocky cliffs around most of East Island and along the east coast of Flinders Island. The granite islands of the Investigator Group and Cap Island have steep cliffs along most of their coastlines. Behind the sandy Anxious Bay beach, a wide dune system extends to Lake Newland within the Lake Newland Conservation Park. Offshore habitats include seagrass meadows, sandy seafloors and reefs, where nutrient-rich marine waters support commercial fisheries, Australian sea lions, white sharks and Long nose fur seals.

There are no permanent surface watercourses and few defined drainage lines. Minor watercourses drain runoff from the hills east of Lake Newland, around Mount Wedge

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and toward the coast south of Elliston.

A significant feature of Musgrave is the fresh groundwater lenses protected within the Musgrave Prescribed Wells Area (PWA) which covers most of the Musgrave subregion. The larger lenses include Talia, Polda, Bramfield, Kappawanta and Sheringa A and B. The Bramfield lense has provided the majority of water extracted under licence from the PWA in recent years since extraction from Polda was restricted as a result of falling water levels. SA Water extracts the majority of water from the PWA for public water supply to Elliston. The associated Water Allocation Plan provides a framework for the protection and sustainable use of these groundwater resources.

Musgrave includes numerous coastal and inland salt lakes including Lake Hamilton, Round Lake, Sheringa Lagoon and Lake Newland. Lake Hamilton and Lake Newland are listed in the Directory of Important Wetlands in Australia and provide habitat for numerous water and shore birds including migratory waders protected under national treaties.

Nearly 60% (320,000ha) of the Musgrave subregion's land area contains remnant native vegetation. This is a very high proportion compared to other agricultural areas of South Australia and can be attributed to the shallow, calcareous soils that limit agricultural productivity. Only about 20% of this native vegetation is protected within formal conservation reserves, with about 15% included in Heritage Agreement mostly adjoining conservation parks. The area contains some of the largest intact areas of bushland in South Australia. The WildEyre conservation project which covers most of the subregion, is linking some of these habitats. The subregion contains a moderate diversity of flora and fauna compared to other subregions on Eyre Peninsula. Specific species and communities of conservation significance, as identified by the Australian Government, are shown in Table 1.

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Table 1 – Selected fauna, flora and vegetation communities of conservation significance

Fauna	Flora	Vegetation communities
Malleefowl (*Leipoa ocellata*)	Silver Daisy-bush (*Olearia pannosa ssp. Pannosa*)	Temperate coastal saltmarsh
Hooded Plover (*Thinornis cucullatus*)		
Eastern Curlew (*Numenius madagascariensis)*		

Further information about these species can be seen below:

- The malleefowl (*Leipoa ocellata*) gets its name from the habitat it occurs in (scrubland and woodland dominated by mallee and wattle species). This ground-dwelling bird is famous for its ability to build enormous mounds. The male and female mate for life and take months working together to build their nest. The eggs are incubated in sand or soil by the sun or mounds of rotting leaves. While the male continues to patch-up the nest during the incubation, the parents take no part in chick rearing, with chicks emerging from the mound completely self-sufficient. Further information about this species can be found at: Malleefowl (Bird). On Eyre Peninsula the malleefowl is found across the whole region in appropriate habitat. The population is likely in decline.
- The hooded plover (*Thinornis cucullatus*) is a small Australian beach nesting bird. It mainly occurs on wide beaches backed by dunes with large amounts of seaweed and jetsam, creek mouths and inlet entrances. Nests are found above the high water mark on flat beaches, on stony terraces, or on sparsely vegetated dunes. As the hooded plover occurs on beaches, it is easily disturbed by human activities, particularly off-leash domestic dogs. Further information about this species can be found at: Hooded Plover (eastern) (Bird). On Eyre Peninsula the hooded plover is found mainly in coastal areas between Cowell and Fowlers Bay with the appropriate habitat. These populations are currently likely in decline. From July 2019, the Australian Government has funded a five-year project with the Eyre Peninsula Landscape Board – the Saltmarsh Threat Abatement and Recover project - that includes actions to support the conservation of the hooded plover.
- The eastern curlew (*Numenius madagascariensis)* is Australia's largest shorebird and a long-haul flyer. It is easily recognisable, with its long, down-curved bill. The eastern curlew takes an annual migratory flight to Russia and north-eastern China to breed, arriving back home to Australia in August to feed on crabs and molluscs in intertidal mudflats. It is extremely shy and will take flight at the first sign of danger. Further information about this species can be found at: Eastern Curlew (Bird). On Eyre Peninsula the eastern curlew is found in coastal areas between Whyalla and Ceduna with the appropriate habitat. It is likely the population is in decline but being a migratory species it is likely the main cause is of this decline is development in its habitat in other countries.
- The subtropical and temperate coastal saltmarsh ecological community consists of organisms including and associated with saltmarsh in coastal regions of sub-tropical and temperate Australia. Further information about this species can be found at: Subtropical and Temperate Coastal Saltmarsh. The health of the vegetation community is in decline. The Australian Government's five-year project with the Eyre Peninsula Landscape Board – the Saltmarsh Threat Abatement and Recovery project - includes actions to support the conservation of this vegetation community.

Livelihoods

The Musgrave landscapes and seascapes support the industries and businesses that sustain the communities' livelihoods.

Grazing is the main agricultural land use in the Musgrave subregion, with sheep and cattle feeding on areas of both natural and modified pastures. There are some areas of cropping north of Elliston and around Lock where soils are deeper with higher loam content.

Commercial wild fisheries in the subregion include the Western Zone Abalone Fishery, the Northern Rock Lobster Fishery and the Marine Scale fish Fishery. Large numbers of fishing vessels use the islands and bays around Elliston for overnight anchorage. Export of fish to interstate and overseas markets occurs from outside the subregion, from Port Lincoln and Thevenard (Ceduna). Farming of abalone occurs near Elliston.

Transport infrastructure includes the Flinders Highway which runs along the west coast, and the Tod Highway which runs along the eastern edge of the subregion. This transport infrastructure supports market access for agricultural and seafood commodities as well as local tourism and business.

Nearly 40% of all employment in Musgrave is in agriculture, with about 10% employment in both health care and aquaculture. The majority of employment outside agriculture occurs in Elliston where retail and educational activities are located.

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The beaches and coastline of the Musgrave subregion are popular tourist destinations. Outdoor activities of fishing, surfing, swimming and four wheel driving are popular tourist activities.

Lifestyles

Elliston and Lock are the main town centres in Musgrave. The majority of the Musgrave subregion is within the District Council of Elliston, with very small and sparsely populated areas in the District Council of Lower Eyre Peninsula and Wudinna District Council. The population of the District Council of Elliston has seen a population decline of 13% from 1998 to 2011.

The age distribution of the population of Musgrave mirrors that of the broader Eyre Peninsula region, with nearly one-third aged under 25 years, just over half aged between 25 and 64 years, and 15% aged 65 years and over. The largest age group is the 45 to 54 group, which is nearly 20% of the total population.

About 2% of people in Musgrave identify as having Aboriginal or Torres Strait Islander heritage. This is lower than the average for all of Eyre Peninsula (4%). Musgrave is the traditional land of the Wirangu and Nauo Aboriginal people.

An important indicator of community connection is volunteering rates. Volunteering rates are very high in Musgrave at nearly 45%. Sport provides opportunities for community connectedness with many residents participating in football, netball and golf. Recreational fishing is also popular.

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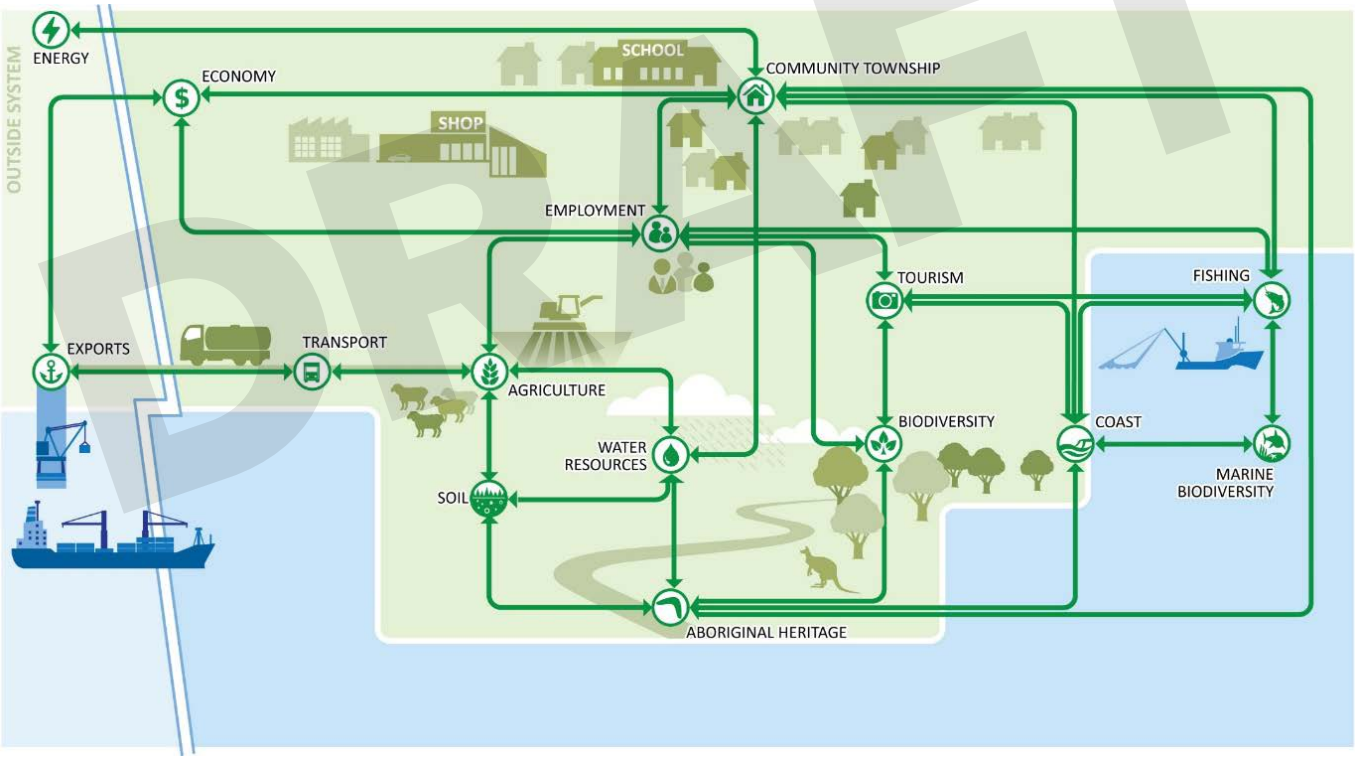
Systems Understanding

Musgrave is a complex system of connections and interactions between people, industries and natural resources. These connections and interactions mean that when one feature is impacted, flow-on effects will be experienced by other features in the system. Developing this understanding can help identify the factors that make the system resilient or vulnerable to change. The Musgrave system is conceptually depicted in Figure 2, where the arrows represent the connections between the system's features.

Key features of the system include water resources, agriculture and the coast. A number of connections in the system are integral to the viability of the Musgrave subregion. For example, the connections between the community, tourism and the coast reflects the importance of the coast for social wellbeing and employment.

The connections between water resources, biodiversity and agricultural is integral for sustaining livelihoods and landscapes' groundwater dependent ecosystems.

Figure 2 – Interconnections of the Musgrave subregion



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Key challenges and opportunities

A range of opportunities were identified by the community and stakeholders to address the key challenges facing natural resources in the Musgrave subregion. Table 2 identifies key landscape challenges and opportunities to address them.

Table 2 – Key challenges and opportunities for the Musgrave subregion

Challenges	Opportunities to address challenges
Agricultural viability	• Support extension officers and agronomists to facilitate practice change and promote sustainable agriculture practices, this includes information sharing with farming groups and agricultural bureaus • Promote practices that prepare landholders to be drought ready, and promote practices that build soil health, and address the causes of soil erosion, dryland salinity and soil structure decline • Support the development and utilisations of water efficiency measures and alternative water supply infrastructure including sheeted catchments • Promote the adoption of restorative farming practices that build soil life and diversity, and maximise ecosystem services
Declining biodiversity	• Protect and restore coast and marine habitats, particularly for priority areas identified in the Coastal Action Plan and Marine Parks' plans • Protect and restore remnant terrestrial habitats and establish biodiversity corridors that link habitats. Priority areas include WildEyre • Develop and implement integrated pest management strategies that address the impacts and causes of pest persistence or incursion. Particular attention is required for overabundant herbivores, feral predators, woody weeds and new pest incursions such as buffel grass • Develop and implement strategies and plans to protect threatened species and ecological communities, includes implementing threatened species recovery plans • Monitor and evaluate natural landscape actions, and their effect on natural resources' condition and trends • Increase participation in citizen science initiatives that assist understanding of trends and the condition of natural resources
Coast and marine degradation	• Support local and regional partners implement the Off-Road Vehicle Strategy, including investigations for designating areas for biodiversity protection and recreational use • Through the Eyes on Eyre initiative, facilitate the development of tourism infrastructure, facilities, information and signage to enable sustainable access and use of the coast • Support on-ground works to protect and enhance coastal condition including track rationalisation, fencing, erosion control, access tracks, revegetation and pest control • Raise awareness about coast and marine conservation including education about human impacts • Partner on mutually beneficial projects including water quality monitoring and works and habitat protection
Aboriginal involvement	• Support traditional owners, Recognised Aboriginal Representative Bodies, Aboriginal Regional Authorities and Aboriginal communities manage natural resources • Support awareness raising activities about Aboriginal cultural knowledge

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References

[1] Bureau of Meteorology (2014) Monthly average rainfall records for stations Elliston (18069), Mount Wedge (18056), Lock (18046), Sheringa (Lake Hamilton) (18045) http://www.bom.gov.au/climate/data/ accessed 30/09/2014.

[2] Department of Environment, Water and Natural Resources (2007) *Soil Landscapes spatial data*.

[3] Eyre Peninsula NRM Board (2009) *State of Our Natural Resources*.

[4] Department of Environment, Water and Natural Resources (2012) *Investigator Marine Park, Management Plan 2012*, http://www.environment.sa.gov.au/files/4e0849cb-2b7c-4e6c-a6f5-a117009eb202/mp-gen-6sirjosephbanks-managementplan.pdf

[5] SA Water (2008) *Long Term Plan for Eyre Region, http://www.sawater.com.au/sawater/whatsnew/majorprojects/ep_longterm.htm* accessed 16/09/2014.

[6] Wainwright, P (2008) *2007 Wetland Inventory for the Eyre Peninsula, South Australia*. Department for Environment and Heritage, South Australia.

[7] Berkinshaw, T.D., Durant, M. (2013) *WildEyre Conservation Action Planning Report June 2013*. Report to the WildEyre Working Group, Greening Australia

[8] Department of Environment, Water and Natural Resources (2014) *Conservation Reserve Parcels spatial data set*.

[9] Australian Bureau of Statistics (2011) *2011 Census of Population and Housing, Basic Community Profiles for Elliston (DC)*, http://www.abs.gov.au/websitedbs/censushome.nsf/home/communityprofiles?opendocument&navpos=230 accessed 1/09/2014

[10] Department of Planning and Local Government (2011) *Age-Sex Population Projections by Local Government Area, 2006-2026*

[11] Australian Bureau of Statistics (2011) *2011 Census of Population and Housing, Basic Community Profiles for Elliston (DC)*, http://www.abs.gov.au/websitedbs/censushome.nsf/home/communityprofiles?opendocument&navpos=230 accessed 1/09/2014.

[12] Australian Bureau of Statistics (2011) *2011 Census of Population and Housing*, Data Packs South Australia, Statistical Area Level 1 http://www.abs.gov.au/websitedbs/censushome.nsf/home/datapacks?opendocument&navpos=250 accessed 1/09/2014

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