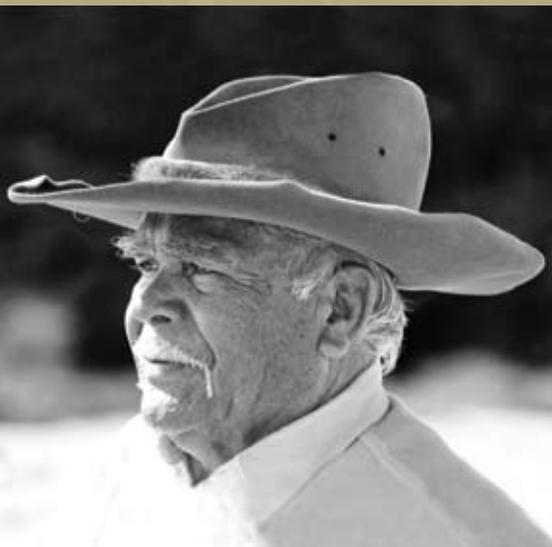


Wild Eyre

Conservation through Collaboration



Wild Eyre



Above: Alan Wilson, Senior Wirangu Traditional Owner; WildEyre Project Team [photos: Matthew Turner]

THE WILDEYRE PROJECT TEAM

The WildEyre project is underpinned by a strong partnership between non-government organisations and state agencies. The consortium consists of key conservation groups of the region including Greening Australia, The Wilderness Society, Department for Environment and Heritage, Eyre Peninsula Natural Resources Management Board and the Nature Conservation Society of South Australia. Representatives from these organisations form the WildEyre project team. The WildEyre team is supported by other individuals, organisations and indigenous representatives.

THE WILDEYRE PROJECT

The recovery and conservation of the large habitat areas of western Eyre Peninsula is a complex ecological challenge. Among the hurdles we face is articulating a conservation vision for this iconic landscape, describing what 'recovered' ecosystems should look like, what biological and ecological conditions are required to meet that goal and what steps will be necessary to achieve that vision. We are addressing these challenges by using a Conservation Action Planning process.

The WildEyre project, however, is more than just another plan. It brings together a suite of government organisations, non-government organisations and community members who share a common long-term vision for the area. The plan is merely a way of clearly articulating this vision and the actions that will be required to realise it. Over time, the plan will change as we learn more. It will form the basis of a genuine, long-term commitment to effective conservation action in the region.

CONSERVATION ACTION PLANNING

The project team has developed an ecological vision and conservation strategies for the project area through the use of the Conservation Action Planning (CAP) process - a landscape-scale planning methodology developed and refined over the past 20 years by The Nature Conservancy. This process is utilised in over 500 conservation projects worldwide.

The CAP process is underpinned by sound science and an in-depth understanding of landscape conservation. The process typically involves 8-10 participants from key conservation organisations working within the target area. The process involves firstly identifying the species and ecosystems that are to be conserved; assessing their health and viability; understanding the stresses and threats; identifying effective conservation strategies; and finally measuring success.

The outcomes of the Conservation Action Planning process have strong linkages to the Eyre Peninsula Natural Resources Management Board's *Comprehensive Plan* and the Department of Environment and Heritage's *NatureLinks Program* and *No Species Loss Strategy*. It is also strongly aligned with The Wilderness Society's *WildCountry Program*, Greening Australia's National Strategic Goal of developing *Transformative Landscape Projects* and the Nature Conservation Society's aim to conserve and manage habitat to ensure the survival of South Australia's biodiversity.

All of these plans, strategies and organisational goals are complementary and are able to be implemented through working collaboratively on the development of the WildEyre project.

Introduction

The west coast of the Eyre Peninsula showcases a diverse range of natural assets: from sweeping coastlines with rugged cliffs, windswept beaches and sheltered coastal bays to wetlands, majestic gum tree woodlands and huge expanses of mallee. This variety of habitats gives rise to a unique suite of flora and fauna species, many of which are endemic, meaning they are found nowhere else on Earth. It is this landscape that the WildEyre project aims to protect for generations to come.

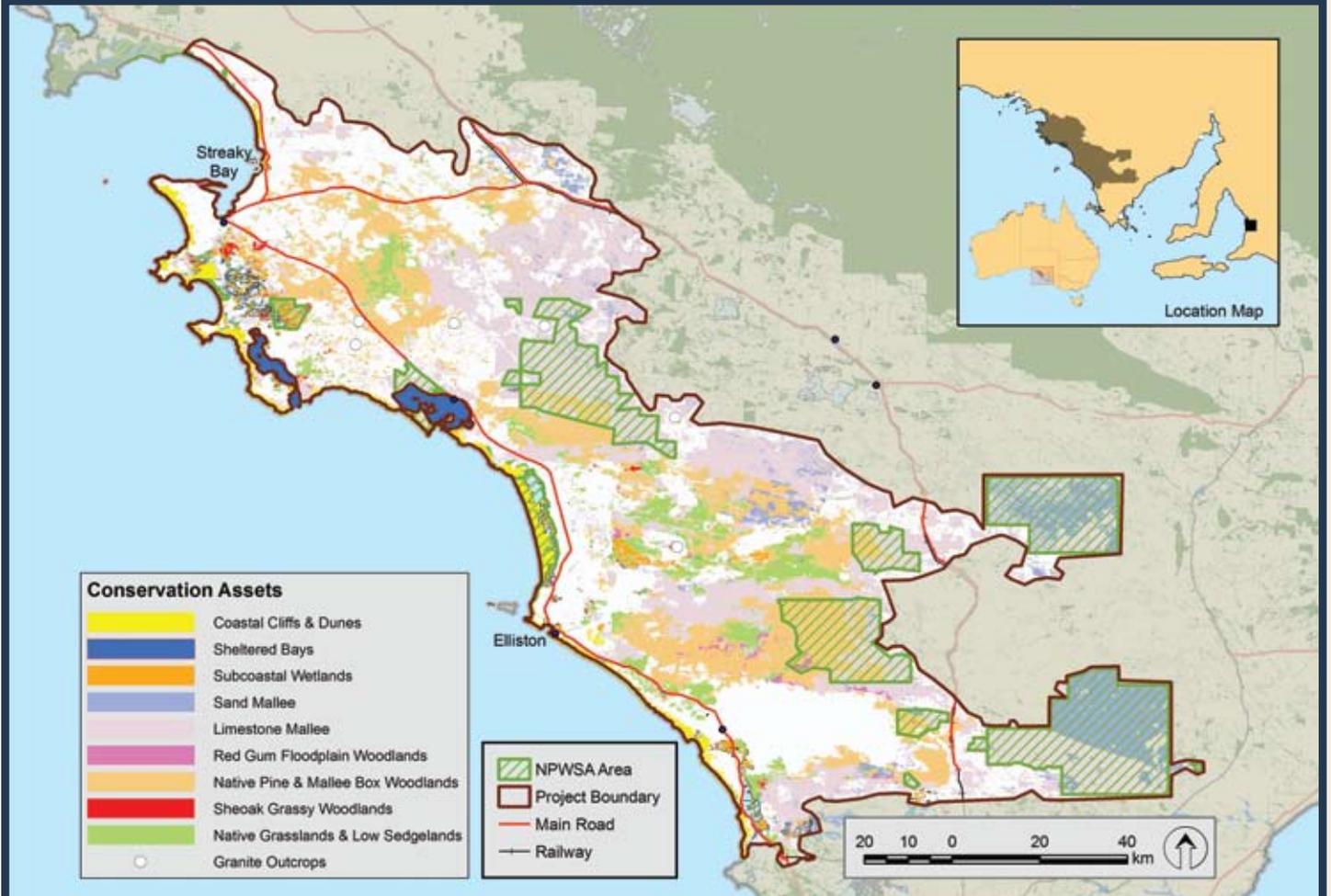
THE PROJECT AREA

The project area incorporates over 1.2 million hectares and includes the coastal townships of Sheringa and Elliston in the south to Streaky Bay in the north and extends inland to the large Wilderness Protection Areas of Hincks and Hambidge. Whilst being important agriculturally, the area contains

some of the largest, intact and contiguous areas of bushland in the state's agricultural districts, and supports numerous nationally, state and regionally threatened plant and animal species. This mosaic of agricultural land combined with significant areas of native habitat makes it an ideal focus for landscape-

scale conservation work. These factors have led to the area being recognised as of state and national significance for biodiversity conservation - being a focus area for The Wilderness Society's *WildCountry* Program and the South Australian Government's *NatureLinks* Program.

The WildEyre Project Area





THREATENED FLORA

The WildEyre project area supports a range of nationally and state listed threatened flora species. These include:

CHENOPODIACEAE

Bottle Fissure-plant (*Maireana excavata*) SA-V

COMPOSITAE

Silver Candles (*Pleuropappus phyllocalymmeus*) SA-V; Aus-V

CRASSULACEAE

Sieber's Crassula (*Crassula sieberiana*) SA-E

GRAMINEAE

Prickly Spear-grass (*Austrostipa pilata*) SA-V

LABIATAE

West Coast Mintbush (*Prostanthera calycina*) SA-V; Aus-V

LEGUMINOSAE

Resin Wattle (*Acacia rhotinocarpa*) SA-V; Aus-V

Sword Bossiaea (*Bossiaea ensata*) SA-V

Yellow Swainson-pea (*Swainsona pyrophila*) SA- R; Aus-V

LILIACEAE

Fringe-lily (*Thysanotus nudicaulis*) SA-E

ORCHIDACEAE

Limestone Leek-orchid (*Prasophyllum calcicola*) SA-V

Metallic Sun-orchid (*Thelymitra epipactoides*) SA-E; Aus-E

RESTIONACEAE

Bundled Cord-rush (*Desmocladus diacolpicus*) SA-V

SCROPHULARIACEAE

Granite Mudwort (*Limosella granitica*) SA-V; AUS-V

THREATENED VEGETATION COMMUNITIES

Sheoak (*Allocasuarina verticillata*) **Grassy Woodlands** SA-V

Thatching Grass (*Gahnia filum*) **Sedgeland** SA-V

R — Rare
V — Vulnerable
E — Endangered

STEP 1: SELECTING THE CONSERVATION ASSETS

The first step of the conservation planning process involves the identification of focal conservation assets (i.e. ecosystems, communities or species) that collectively represent the biodiversity of the project area.

The asset selection process begins by identifying coarse-scale ecosystems and communities for conservation. The issue of whether to group ecosystems together or split into individual conservation assets is often a difficult one.

In general, ecosystems are grouped together if they:

- co-occur across the landscape;
- share similar ecological processes;
- share similar threats.

The next phase is to screen for species that are not 'nested' or well protected within the groupings of ecosystems; that is, those species whose conservation requirements are not met through the conservation of the coarse-scale ecosystems. Examples include: rare, threatened and endemic species; species with highly disjunct populations or restricted distributions; 'keystone' or highly interactive species (i.e. those that have a disproportionate influence on the structure and ecological function of the community) and wide-ranging species.



1. Sandy Coasts and Dunes

Sandy Coasts and Dune systems support unique ecological communities that are highly adapted to coastal conditions and perform a critical role in buffering inland habitats. There are numerous examples of sandy habitats in the project area, including Sheringa, Lake Newland Conservation Park, Yanerbie Dunes, and the beaches found in Anxious, Sceale, Corvisart and Streaky Bays.

SIGNIFICANT FLORA AND FAUNA

- **Hooded Plover** (*Thinornis rubricollis*)
- **Beach Slider** (*Lerista arenicola*)

2. Rocky Coasts and Cliff-tops

Rocky Coasts and Cliff-tops on western Eyre Peninsula support ecological communities well adapted to the prevailing westerly winds, high-energy swell and salt spray. Rocky coastlines also provide important buffer zones for inland habitats. Rocky intertidal reefs are important feeding grounds for numerous marine invertebrates which are, in turn, a food source for many important species of birds, fish and marine mammals such as sea lions and dolphins.

Rock pools on granitic coasts in the WildEyre project area are prime habitat for the Yellow Sea Star (known locally as 'Little Patty') the world's smallest sea star. This species is endemic to the West Coast of Eyre Peninsula between Point Labatt and Cape Vivonne.

SIGNIFICANT FLORA AND FAUNA

- **West Coast Mintbush** (*Prostanthera calycina*)
- **Yellow Sea Star** (*Parvulastra parvivipara*)
- **Osprey** (*Pandion haliaetus*)
- **White-bellied Sea-Eagle** (*Haliaeetus leucogaster*)
- **Australian Sea-lion** (*Neophoca cinerea*)



Identifying Conservation Assets

Landscape conservation begins with understanding the priority conservation assets of the area. The project team has considered the unique ecosystems, species and ecological communities within the WildEyre region and has identified the following 12 assets for conservation.

Above: Azure Daisy (*Olearia rudis*) [photo: Matthew Turner]; Rocky Coast and associated vegetation, Western Eyre Peninsula [photo: Todd Berkinshaw]; Below Assets: 1-5 [photos: Matthew Turner]



3. Sheltered Coastal Bays

The calm, warm waters of Sheltered Coastal Bays are important nurseries for fish and shellfish with the higher nutrient content of the water providing food for both young and parents. Tidal flats are particularly abundant in life forms, with the main inhabitants being shellfish, worms, crabs, crustaceans and fish, as well as migratory birds which forage in the sand and mud.

There are a number of sheltered bays within the project area, including Baird Bay, Venus Bay and Streaky Bay. Streaky Bay is listed on the Register for Nationally Significant Wetlands of Australia, and is a hotspot for bird species which fall under international agreements for conservation. Venus Bay has been classified as an Important Bird Area by BirdLife International.

Islands within Sheltered Bays, in particular Venus Bay are highly significant breeding sites for a range of birds due to their protection from predators. The Venus Bay Islands are known to be significant breeding sites for Pacific Gulls, Rock Parrots, Reef Herons, Cormorants and various Tern species.

SIGNIFICANT FLORA AND FAUNA

- **West Coast Mintbush** (*Prostanthera calycina*)
- **Beach Slider** (*Lerista arenicola*)
- **Osprey** (*Pandion haliaetus*)
- **White-bellied Sea-Eagle** (*Haliaeetus leucogaster*)
- **Sooty Oystercatcher** (*Haematopus fuliginosus*)
- **Pied Oystercatcher** (*Haematopus longirostris*)
- **Hooded Plover** (*Thinornis rubricollis*)
- **Fairy Tern** (*Sterna nereis*)
- **Rock Parrot** (*Neophema petrophila*)
- **Blue-breasted Fairy-wren** (*Malurus pulcherrimus*)



4. Sub-coastal Wetlands

There is a wide variety of Sub-coastal Wetlands within the project area. These wetlands are important refuges for many species of birds, especially migratory and resident shorebirds, which shelter on the calmer waters when weather conditions become too wild. Associated plant communities include Thatching Grass Sedgeland, Swamp Paperbark Shrublands and Sapphire Low Shrublands.

Some of the best examples of Sub-coastal Wetlands area, including Lake Hamilton, Round Lake, Lake Newland and Seagull Lake near Streaky Bay. Seagull Lake and Lake Newland are both classified as Important Bird Areas by BirdLife International

SIGNIFICANT FLORA AND FAUNA

- **Thatching Grass Sedgeland** (*Gahnia filum*)
- **Beaded Sapphire** (*Tecticornia flabelliformis*)
- **Yellow Sedge-skipper** (*Hesperilla flavescens*)
- **Smallmouth Hardyhead** (*Atherinosoma microstoma*)
- **Sharp-tailed Sandpiper** (*Calidris acuminata*)
- **Red Knot** (*Calidris canutus*)
- **Red-necked Stint** (*Calidris ruficollis*)
- **Banded Stilt** (*Cladorhynchus leucocephalus*)
- **Red-necked Avocet** (*Recurvirostra novaehollandiae*)
- **Red-capped Plover** (*Charadrius ruficapillus*)
- **Fairy Tern** (*Sterna nereis*)
- **Slender-billed Thornbill** (*Acanthiza iredalei*)



5. Coastal and Limestone Mallee

Limestone Mallee communities occupy very large areas of coastal and inland districts and are well protected within Hincks and Hambidge Wilderness Protection Areas and Kulliparu Conservation Park. Dominant tree species include Coastal Mallee (*Eucalyptus diversifolia*), Yorrell (*Eucalyptus gracilis*) and Red Mallee (*Eucalyptus oleosa*). In coastal and near coastal areas, Dryland Tea Tree (*Melaleuca lanceolata*) and Drooping Sheoak (*Allocasuarina verticillata*) can also co-occur with the dominant mallee species.

Limestone Mallee is habitat for the Dinosaur Ant (*Nothomyrmecia macrops*), a nocturnal ant species endemic to the Eyre Peninsula. Its entire distribution falls primarily in the WildEyre project area. This species occurs in 'old growth' mallee woodland dominated by *Eucalyptus oleosa*, *E. brachycalyx* and *E. gracilis*.

Mallee communities also provide important habitat to the nationally vulnerable Malleefowl (*Leipoa ocellata*) and many other important fauna species.

SIGNIFICANT FLORA AND FAUNA

- **West Coast Mintbush** (*Prostanthera calycina*)
- **Cummins Mallee** (*Eucalyptus peninsularis*)
- **Malleefowl** (*Leipoa ocellata*)
- **Grey-bellied Dunnart** (*Sminthopsis griseoventer*)



THREATENED FAUNA

The WildEyre project area supports a range of nationally and state listed threatened fauna species. These include:

REPTILES

- Carpet Python (*Morelia spilota*) SA-R
- Bardick (*Echiopsis curta*) SA-R
- Beach Slider (*Lerista arenicola*) SA-R
- Dwarf four-toed Slider (*Lerista distinguenda*) SA-R

MAMMALS

- Brush-tailed Bettong (*Bettongia penicillata*) SA-E
- Greater Bilby (*Macrotis lagotis*) SA-V; AUS-V
- Greater Long-eared Bat (*Nyctophilus timoriensis*) SA-V; AUS-V
- Australian Sea-lion (*Neophoca cinerea*) SA-V
- Sandhill Dunnart (*Sminthopsis psammophila*) SA-V; AUS-E

BIRDS

- Malleefowl (*Leipoa ocellata*) SA-V; Aus-V
- Painted Button-quail (*Turnix varia*) SA-R
- Cape Barren Goose (*Cereopsis novaehollandiae*) SA-R
- Eastern Reef Egret (*Egretta sacra*) SA-R
- Plains-wanderer (*Pedionomus torquatus*) SA-E; Aus-V
- Hooded Plover (*Thinornis rubricollis*) SA-V
- Fairy Tern (*Sterna nereis*) SA-E
- White-bellied Sea-Eagle (*Haliaeetus leucogaster*) SA-E
- Osprey (*Pandion haliaetus*) SA-E
- Peregrine Falcon (*Falco peregrinus*) SA-R
- Yellow-tailed Black-cockatoo (*Calyptorhynchus funereus*) SA-V
- Blue-winged Parrot (*Neophema chrysostoma*) SA-V
- Rock Parrot (*Neophema petrophila*) SA-R
- Brown Honeyeater (*Lichmera indistincta*) SA-R
- Chestnut Quail-thrush (*Cinclosoma castanotus*) SA-R
- Red-lored Whistler (*Pachycephala rufogularis*) SA-R
- Diamond Firetail (*Stagonopleura guttata*) SA-V

R — Rare
V — Vulnerable
E — Endangered



6. Sand Mallee

Sand Mallee communities occur on inland sandy dunes and plains and are well protected in the large conservation reserves of central Eyre Peninsula, particularly the Wilderness Protection Areas of Hincks and Hambidge. Dominant plant species include Ridge-fruited Mallee (*Eucalyptus incrassata*), Scrub Cypress Pine (*Callitris verrucosa*), Broombush (*Melaleuca uncinata*) with a ground layer of Spinifex (*Triodia* spp.) common in some areas.

SIGNIFICANT FLORA AND FAUNA

- Malleefowl (*Leipoa ocellata*)
- Sandhill Dunnart (*Sminthopsis psammophila*)
- Red-lored Whistler (*Pachycephala rufogularis*)
- Greater Long-eared Bat (*Nyctophilus timoriensis*)

7. Sand Mallee Dune-top Remnants

Sand Mallee Dune-top remnants exist largely on cleared agricultural land in highly fragmented states. Dune top remnants are valued by landholders due to their role in stabilising soils, preventing wind erosion and buffering crops.

Sand Mallee Dune-top remnants are acknowledged as having an important role in maintaining fauna diversity on farms - in particular that of reptiles. Furthermore, they have enormous potential in enhancing large-scale connectivity across the landscape.

SIGNIFICANT FLORA AND FAUNA

- Sandhill Dunnart (*Sminthopsis psammophila*)
- Heath Goanna (*Varanus rosenbergi*)
- Western Whipbird (*Psophodes nigrogularis leucogaster*)



8. Red Gum Woodlands

River Red Gum (*Eucalyptus camaldulensis*) Woodlands are a regionally threatened plant community, restricted to low lying areas where soil moisture is high or fresh groundwater is available. These woodlands provide important hollow and nesting areas for many species of woodland birds.

Red Gum Woodlands are threatened in the project area due to an overuse of groundwater basins, stock grazing and historical clearance for the production of railway sleepers. Less than 25 percent of areas occur within the formal reserve system, highlighting the need for protection on private lands. Some areas are protected within Bascombe Well and Shannon Conservation Parks.

SIGNIFICANT FLORA AND FAUNA

- Carpet Python (*Morelia spilota*)
- Short-beaked Echidna (*Tachyglossus aculeatus*)
- Plains-wanderer (*Pedionomus torquatus*)
- Honeyeaters (*Lichenostomus* spp.)
- Diamond Firetail (*Stagonopleura guttata*)



Identifying Nested Assets

Nested assets include significant flora and fauna species or specific vegetation communities that are commonly associated with the conservation asset. Nested assets often include rare, threatened or endemic plants and animals or significant habitat types.

Above: Sandhill Dunnart (*Sminthopsis psammophila*), [photo: M. Ward, DEH]; Sheoak Trunks and Spear Grass, [photo: Katrina Pobke, DEH]
 Below Assets: 6 & 9 [photos: Todd Berkinshaw]; 8 & 10 [photos: Matthew Turner]; 12 [photo: Anthony Freebairn, DEH]



9. Mallee Box and Native Pine Woodlands

Mallee Box (*Eucalyptus porosa*) and Native Pine (*Callitris gracilis*) Woodlands occur together across semi-arid areas of South Australia. Large areas of Mallee Box remain within the project area. However, the distribution of Native Pine is more patchy. When in good condition, these woodlands contain many annual herbaceous species.

Both woodland types are significantly threatened by grazing pressure from stock, rabbits and kangaroos. Old-growth Mallee Box trees also develop important hollows that provide habitat for fauna species such as the Western Pygmy-possum (*Cercartetus concinnus*).

SIGNIFICANT FLORA AND FAUNA

- **Western Pygmy-possum** (*Cercartetus concinnus*)
- **Plains-wanderer** (*Pedionomus torquatus*)
- **Diamond Firetail** (*Stagonopleura guttata*)



10. Sheoak Grassy Woodlands

Drooping Sheoak (*Allocasuarina verticillata*) Grassy Woodlands are listed as a vulnerable ecosystem in South Australia. This plant community generally occurs on shallow, calcareous soils where the annual rainfall exceeds 350 mm. The understorey is composed of native grasses, sedges and herbs, with a few small to medium-sized shrubs present.

SIGNIFICANT FLORA AND FAUNA

- **Drooping Sheoak** (*Allocasuarina verticillata*)
- **Plains-wanderer** (*Pedionomus torquatus*)
- **Diamond Firetail** (*Stagonopleura guttata*)

11. Native Grasslands

Native Grasslands are naturally-occurring, treeless areas dominated by native grasses, herbs, low sedges, iron-grass and chenopods. On western Eyre Peninsula grasslands are dominated by Wallaby Grass (*Austrodanthonia* spp.), Spear Grass (*Austrostipa* spp.) and Black Grass Saw-sedge (*Gahnia lanigera*). Native Grasslands typically occur on relatively fertile soils with widespread modification through cropping, stock grazing, weeds and feral animals.

Many of these grasslands are in fact 'derived grasslands.' It is likely that these grasslands were once grassy woodlands, but following clearance and grazing they have lost trees from the canopy and in many cases much of their diversity from the understorey.

SIGNIFICANT FLORA AND FAUNA

- **Hummock grasses** (*Triodia* spp.)
- **Tussock grasses** (*Austrostipa* spp., *Austrodanthonia* spp.)
- **Australian Bustard** (*Ardeotis australis*)
- **Plains-wanderer** (*Pedionomus torquatus*)



12. Granite Outcrops

Granite Outcrops (also known as Granite Inselbergs) are biologically important components of the landscape supporting a unique suite of species and vegetation types. These include Mallee Box (*Eucalyptus porosa*) and Native Pine (*Callitris gracilis*) Woodlands and rare plants such as Nodding Grass-lily (*Stypandra glauca*), Needle-leaf Honey-myrtle (*Melaleuca armillaris* ssp. *akineta*) and Granite Mudwort (*Limosella granitica*).

Granite Outcrops also possess water holding properties, serving as a refuge for some species in times of drought.

Important granite outcrops include Murphy's Haystack, Snaggle Rock, Mount Wedge, Cocata Hill, The Kurbula, Mount Cooper, Mount Hall and Ucontitchie Hill.

SIGNIFICANT FLORA AND FAUNA

- **Granite Mudwort** (*Limosella granitica*)
- **Needle-leaf Honey-myrtle** (*Melaleuca armillaris* ssp. *akineta*)
- **Nodding Grass-lily** (*Stypandra glauca*)



THE DECLINE OF SHEOAK WOODLANDS

Drooping Sheoak (*Allocasuarina verticillata*) Grassy Woodlands on western Eyre Peninsula are among the most highly cleared and degraded vegetation community of any region of South Australia. Intensive grazing along with the introduction of rabbits and clearance for agriculture has led to a dramatic decline in their condition and extent, to the point that they are now a threatened ecosystem in South Australia.

The ground layer is dominated by grasses, sedges and/or tussocky lilies. There may be a rich herb layer where grazing pressure is minimal. Healthy examples also contain multiple age cohorts of Sheoak due to the high regenerative capacity of the species.

Heavily degraded examples may lack the overstorey trees and appear as open grasslands or may maintain scattered mature Sheoaks but occur with an understorey of mainly exotic annual grasses and broadleaf weeds. Drooping Sheoak is a relatively short-lived tree (to around 80 years) which often results in only senescing or dead trees remaining in grazed paddocks. A lack of recruitment means the older generation is the only age class and when these die out the paddock becomes an open grassy area.

In order to naturally recover a Sheoak overstorey, paddocks need to be rested from stock for between 5-9 years for trees to mature above browse height, and for there to be more than one age class in the paddock. Rabbit and kangaroo control is also essential during this period as animal grazing pressure will suppress Sheoak regeneration.

STEP 2: DETERMINING THE VIABILITY OF THE CONSERVATION ASSETS

The second step in the conservation planning process is a rapid assessment of the viability of the conservation assets. This includes:

1. Identification of key ecological attributes for the conservation assets.

Typically, 3-5 key ecological attributes are selected to represent the critical factors required for the long term viability of the conservation assets in the landscape. These relate to the size, condition and landscape context of the assets and may include appropriate hydrological regimes, fire regimes, water quality, fauna and flora species diversity, total remnant area and the size and configuration of patches.

2. Identification of appropriate indicators for the key ecological attributes.

Appropriate indicators are easily measured factors closely associated to the status of the key ecological attribute. For example, the frequency, duration and timing of flood events may be appropriate indicators for hydrological regimes. Similarly, the frequency, intensity and total extent of fire in the landscape may be appropriate indicators to assess the status of fire regimes.

3. Development of criteria for rating the current status of the key ecological attributes.

The development of criteria for rating the status of the key ecological attributes is an iterative process that typically starts as a simplified qualitative assessment (e.g. lots,

some, few) and is progressively developed into more refined, numeric value ranges (e.g. 10,000 hectares of no more than 3 large patches). Criteria for poor, fair, good, very good are developed for each key ecological attribute.

4. Ranking the current status of each key ecological attribute to determine the overall viability of the conservation assets.

The final step in determining viability is to rank the current status of each key ecological attribute based on the criteria developed above. These individual ratings are rolled up to provide an assessment of the overall viability of each asset.

Explanations of the rankings for poor, fair, good and very good are provided below:

POOR - allowing the factor to remain in this condition for an extended period of time will make restoration practically impossible.

FAIR - outside its range of acceptable variation, requires intervention, if unchecked is prone to serious degradation.

GOOD - functioning within its range of acceptable variation, may require some intervention.

VERY GOOD - functioning at an ecologically desirable status, requires little intervention.



Assessing Landscape Health

The overall health of the WildEyre landscape is a product of the viability of the individual conservation assets. This is determined by an assessment of the size, condition and landscape context of each asset.

Above: Red-capped Robin (*Petroica goodenovii*) [photo: Louise Mortimer]; Degraded Drooping Sheoak Grassy Woodland [photo: Matthew Turner]

The overall viability of the conservation assets within the WildEyre project area were rated through an assessment of their size, condition and landscape context (i.e. poor to very good).

Mallee and coastal assets (i.e. cliffs, bays and wetlands) were generally assessed with viability ratings of good to very good. This was attributable to the large areas of coastal and mallee communities remaining (size) and the appropriate diversity and composition of flora and fauna within these habitats (condition).

The exceptions to this were Coastal Dunes which scored lower due to the presence of environmental weeds such as African Boxthorn (*Lycium ferocissimum*). Also the lack of adjacent vegetation buffers for all coastal assets resulted in a lower score in terms of their landscape context. Similarly, mallee communities scored lower on landscape context due to the lack of appropriate fire regimes.

Mallee Box and Red Gum Woodlands were assessed with an overall viability rating of

fair. This lower rating was attributable to the generally poor condition of the understorey vegetation in Mallee Box Woodlands and the impact of altered hydrological regimes on Red Gum Woodlands.

Drooping Sheoak Grassy Woodlands and Sand Mallee Dune-top Remnants scored lowest in terms of their overall viability. The impacts of large scale vegetation clearance and highly degraded understorey vegetation resulted in a viability rating of poor.

Conservation Assets		Landscape Context	Condition	Size	Overall Viability
		Grade			
1	Sandy Coasts and Dunes	Fair	Fair	Good	Fair
2	Rocky Coasts and Cliff-tops	Good	Fair	Good	Good
3	Sheltered Coastal Bays	Good	Good	-	Good
4	Sub-coastal Wetlands	Poor	Good	Good	Fair
5	Coastal and Inland Limestone Mallee	Fair	Good	Very Good	Good
6	Sand Mallee Communities	Fair	Good	Good	Good
7	Sand Mallee Dune-top Remnants	Poor	Poor	Poor	Poor
8	Red Gum Woodlands	Fair	Fair	Fair	Fair
9	Mallee Box and Native Pine Woodlands	Good	Poor	Good	Fair
10	Sheoak Grassy Woodlands	Fair	Poor	Poor	Poor
11	Native Grasslands	Good	Poor	Good	Fair
12	Granite Outcrops	Fair	Fair	-	Fair
Overall Landscape Health					Fair



HIGH PRIORITY THREATS

The Conservation Action Planning process identified the high priority threats to biodiversity across the project area, and then examined the impact of each of these threats on the focal conservation assets (see table).

On a regional scale, the highest ranking threats included:

- Grazing by rabbits and stock, particularly for grassy ecosystems;
- Historical land clearance for Sheoak Woodlands (*Allocasuarina verticillata*) and Sand Mallee Dune-top Remnants;
- Groundwater extraction on River Red Gum (*Eucalyptus camaldulensis*) Woodlands;
- Impact of adjacent land use such as cropping and grazing on linear ecosystems (e.g. Sub-coastal Wetlands, Granite Outcrops, etc.);
- Environmental weeds such as African Boxthorn (*Lycium ferocissimum*), particularly in coastal areas;
- Predation from introduced carnivores such as cats (*Felis catus*) and foxes (*Vulpes vulpes*).

The conservation assets most at risk from threatening processes were:

- Red Gum Woodlands
- Native Pine and Mallee Box Woodlands
- Drooping Sheoak Grassy Woodlands
- Sand Mallee Dune-top Remnants

STEP 3: ASSESSING THE THREATS TO THE CONSERVATION ASSETS

The third step in the conservation planning process is to identify high priority threats to the conservation asset. This is a two phase process.

The first phase involves an assessment of the key stresses to the conservation assets. Stresses are directly related to the key ecological attributes (refer step 2) and includes factors such as inappropriate fire regimes, reduced native species diversity, reduced water quality, habitat fragmentation, etc.

Stresses are ranked from very high to low based on:

- 1) the severity of damage where it occurs (i.e. destroys or eliminates the conservation asset, seriously degrades, moderately degrades or slightly impairs); and
- 2) the scope of the damage (i.e. very widespread, widespread; localised, very localised).

The second phase involves the identification and ranking of the source of stresses (i.e. the direct threats). For example, the source of stress for reduced species diversity is generally grazing pressure (stock, rabbits and kangaroos) and the source of stress relating to inappropriate hydrological regimes may be excessive groundwater extraction.

Sources of stress are ranked from very high to low based on:

- 1) the contribution of the source to the stress (i.e. very large contributor, large contributor, moderate contributor, small contributor); and
- 2) the irreversibility of the stress caused by the source (not reversible, reversible, but not practically affordable, reversible with reasonable commitment of resources, easily reversible at low cost).

Once the stresses and sources are ranked according to the above criteria, a summary rating for each threat is generated. This results in the threats summary table (refer to threats table opposite) that allocates a ranking for each threat from very high to low, both in terms of the threat to the individual conservation assets and to the collective impact of the threat across the landscape.



Identifying High Priority Threats

Biodiversity is threatened by a large and diverse range of factors. These threats can be localised and highly destructive or widespread but with minimal impact. Identifying which threats are likely to have the biggest impact and which can be abated is critical to the development of effective conservation strategies.

Above: Feral Cat [photo: DEH]; Recently burnt Sand Mallee [photo: Matthew Turner]

Threats	Sandy Coasts & Dunes	Rocky Coasts & Cliff -tops	Sheltered Coastal Bays	Sub-coastal Wetlands	Coastal & Inland Limestone Mallee	Sand Mallee	Sand Mallee Dune-top Remnants	Red Gum Woodlands	Mallee Box & Native Pine Woodlands	Sheoak Grassy Woodlands	Native Grasslands	Granite Outcrops	Overall Threat Rank
Stock Grazing	Medium	Medium	-	Medium	Low	Low	High	High	High	Very High	High	Medium	Very High
Rabbit Grazing	Medium	-	-	Low	Low	Low	Medium	High	High	High	Medium	Low	High
Historical Land Clearance	-	-	-	Medium	Low	-	High	Low	-	High	-	-	High
Groundwater Extraction	-	-	-	Medium	-	-	-	High	-	-	-	-	Medium
Adjacent Land Use (Cropping & Grazing)	-	-	-	Low	-	-	-	-	-	-	-	High	Medium
Weeds	Medium	Low	Low	Low	Low	Low	Medium	Medium	Low	Medium	-	Low	Medium
Feral Predators (Foxes and Cats)	Medium	Low	Low	Low	Medium	Medium	Medium	Low	-	-	Low	Low	Medium
Over Abundant Native Grazing (Kangaroos)	-	-	-	-	Low	-	-	Medium	Medium	High	Medium	Low	Medium
Coastal Development	Medium	Medium	Low	-	-	-	-	-	-	-	-	-	Medium
Lack of Mosaic Patchy Burns	-	-	-	-	Medium	Medium	-	-	-	-	-	-	Medium
Agricultural & Industrial Pollutants	-	-	-	Low	-	-	Medium	-	-	-	-	-	Low
Unmanaged Recreational Impacts	Low	Low	Low	-	-	-	-	-	-	-	-	-	Low
Overall Threat Status	Medium	Medium	Low	Medium	Medium	Medium	High	High	High	Very High	Medium	Medium	High



MONITORING AND EVALUATION

The establishment of a rigorous monitoring and evaluation program at the commencement of a project is critical to evaluating its long term success. It also provides an opportunity to adjust conservation objectives and strategies over time, using the monitoring and evaluation process to underpin an adaptive management approach.

Most conservation objectives set by the WildEyre Conservation Action Planning process relate to the size and condition of conservation assets. Change in size of assets over time will be monitored using change in mapped extent. Monitoring change in condition will rely upon the establishment and ongoing monitoring of sites where vegetation attributes (e.g. species richness, structural diversity, degree of weed invasion) will be compared to Bushland Condition Monitoring benchmark values.

To ensure the project has excellent baseline data on bushland condition, 50 monitoring sites have been established throughout the project area, with another 50 planned in subsequent years.

Monitoring of threatened flora and fauna populations will also be a strong focus of the monitoring program to ensure conservation actions are effective in protecting the region's rarest and most vulnerable plants and animals.

STEP 4: DEVELOPING CONSERVATION STRATEGIES AND OBJECTIVES

The fourth step in the conservation planning process is to develop conservation strategies that, if achieved, would ensure the long term viability of the conservation assets. Strategies should address high priority threats (refer Step 3) and achieve improvement in conservation asset's size, condition and landscape context. Each strategy is linked to measurable objectives (i.e targets) that allow the success of strategies to be monitored and evaluated over time.

Good conservation objectives are designed to be 'SMART' (ie Specific, Measurable, Actionable, Realistic and Time-bound). By setting SMART objectives, the success of strategies can be monitored and evaluated. Strategies are also underpinned by stepwise and systematic actions, known as strategic actions, that must be undertaken to support the implementation of the conservation strategies.

The following conservation strategies and objectives have been developed by the WildEyre project team based upon the latest published material and local knowledge, but should be considered as a guide only. The conservation action planning process allows for these strategies and objectives to be reviewed and changed over time if new research or knowledge becomes available.

STRATEGIES AND OBJECTIVES

WildEyre's conservation planning process identified ten key conservation strategies and 18 objectives:

Strategy 1: Improved coastal development planning.

Objective 1.1: Restrict coastal developments to environmentally appropriate designs and locations and cease any further developments from ecologically sensitive areas by 2013.

Strategy 2: Improved coastal infrastructure and signage for high-use recreational areas.

Objective 2.1: Measurable improvement in condition of coastal areas regularly used for recreational activities through appropriate infrastructure and signage by 2013.

Strategy 3: Coordinated coastal weed control program.

Objective 3.1: Protect high priority areas of Coastal Dunes and Cliff-tops from African Boxthorn and other significant weed infestations by 2015.

Strategy 4: Revegetation and fencing program to reconstruct Sheoak Grassy Woodlands and to buffer and protect linear ecosystems.

Objective 4.1: Revegetate 1,500 hectares of Sheoak Grassy Woodlands to ensure adequate and representative areas and to create vegetation buffers for linear ecosystems by 2015.

Objective 4.2: Protect high priority sub-coastal wetlands with vegetation buffers to improve habitat diversity and linkages by 2015.



Developing Strategies & Objectives

The development of strategies and objectives helps to define the specific actions through which conservation will be achieved and sets timeframes and quantifiable outcomes to evaluate the success of the project.

Above: Sleepy Lizard (*Tiliqua rugosa*) [photo: Matthew Turner]; Talia Caves [photo: Louise Mortimer]

Objective 4.3: Protect and buffer high priority Coastal Dunes and Cliff-tops from stock grazing to allow measurable improvement in native vegetation condition by 2015.

Objective 4.4: Buffer and reconnect Sand Mallee Dune-top remnants in priority areas to support species dispersal by 2020.

Objective 4.5: Protect and buffer Granite Outcrops to restore specific habitat type by 2015.

Strategy 5: Targeted protection program for the highly threatened Drooping Sheoak Woodlands.

Objective 5.1: Restore and secure long term protection for an additional 1,300 hectares of high quality Sheoak Grassy Woodlands by 2012.

Strategy 6: Sustainable groundwater use program.

Objective 6.1: Restore groundwater hydrological regimes for Red Gum Woodlands to achieve improvement in the health of overstorey trees and encourage regeneration by 2015.

Strategy 7: Stewardship payments and other incentives to manage high priority remnant vegetation.

Objective 7.1: Restore and secure long term protection for an additional 1,200 hectares of high quality Red Gum Woodlands by 2015.

Objective 7.2: Restore and secure long term protection for an additional 10,000 hectares of high quality Mallee Box and Native Pine Woodlands by 2015.

Strategy 8: Sustainable grazing program.

Objective 8.1: Measurable improvement in condition of 20,000 hectares of degraded Sheoak Grassy Woodlands by 2014.

Objective 8.2: Measurable improvement in 40,000 hectares of Mallee Box and Native Pine Woodlands by 2015.

Objective 8.3: Measurable improvement in condition of 1,000 hectares of Red Gum Woodlands by 2015.

Strategy 9: Feral animal (foxes, cats, rabbits) and overabundant native fauna control program.

Objective 9.1: Maximise the distribution and populations of native fauna threatened by feral predator by 2020.

Objective 9.2: Regeneration of palatable native plant species and stabilisation of soil structure in areas not grazed by stock by 2020.

Strategy 10: Ecological burns program to protect high priority mallee remnants

Objective 10.1: Restore fire regimes to produce an appropriate mosaic of fire history that minimises the risk of a large fire destroying localised species populations and maximises habitat diversity by 2015.

WORKED EXAMPLE

The following is a worked example of a series of strategic actions devised by the WildEyre project team to help achieve *Objective 8.1:* Measurable improvement in condition of 20,000 hectares of Sheoak Grassy Woodlands by 2014.

Strategic Action 1: Identification, mapping and assessment of recoverable Sheoak Grassy Woodland areas.

Strategic Action 2: Identification of pre-European extent and targeted area required to be restored to achieve landscape linkages between core habitat areas.

Strategic Action 3: Establishment of a landholder engagement and community awareness program.

Strategic Action 4: Establishment of a baseline monitoring program and research into total grazing impact (kangaroos, sheep, rabbits) and recoverability of key areas through exclosures.

Strategic Action 5: Implementation of targeted incentive and technical support program for sustainable grazing in key landscape linkage areas.

To implement these strategic actions a budget of approximately \$3.6 million would be required over a 9 year period (20,000Ha @ \$180/Ha over 9 years).



INVOLVEMENT OF ABORIGINAL COMMUNITIES

Evidence of Aboriginal occupation exists throughout the WildEyre project area, including stone artefacts, campsites, middens, stone arrangements, burial sites, paintings and engravings. Furthermore, many of the Native Title claimants maintain an ongoing connection to country, living in or regularly visiting the area.

The WildEyre project area covers three existing Native Title claims: Wirangu No. 2; Nao-Barngarla and Barngarla. The WildEyre project team have begun engaging with these groups.

In the short-term indigenous engagement will involve a thorough search of the State Heritage Register. The team is also committed to engaging with the relevant Native Title claimants prior to on-ground works proposals to seek their advice on heritage related issues.

The project team are excited by a genuine partnership with the local Indigenous community. This will add value, depth and an additional dimension to an already exciting initiative. The WildEyre project recognises:

- indigenous peoples are the traditional custodians, who have managed this environment since time immemorial,
- indigenous people did not voluntarily relinquish sovereignty over the project area,
- the continued existence of native title land and sea rights within the project area.

STEP 5: PUTTING THE PLAN INTO ACTION

The most critical step in the conservation planning process is also the most difficult. Too often good plans sit on the shelf gathering dust. Moving beyond good intentions and theory requires a collective commitment to the plan's implementation and long term success. This includes:

ORGANISATIONAL PARTNERSHIPS

The diverse organisational partnerships of the WildEyre project brings a wealth of both government and non-government skills and knowledge, and also provides excellent opportunities to leverage funding. The long term commitment to the project through programs such as *NatureLinks* and *WildCountry* also ensures that even if staff come and go, the WildEyre project will remain a focus for years to come.

COMMUNITY INVOLVEMENT

The involvement and support of local landholders and community members is crucial. Public workshops have been held to encourage discussion and input into the plan and direct approaches to key land managers will occur as components of the plan move towards implementation.

INVESTMENT INTO THE PLAN

The most critical component to the long term success of the project is attracting large scale investment. Approximately \$30 million over the next 20 years will be required to achieve the conservation objectives of the WildEyre project. This level of investment is unlikely to be fully sourced from traditional sources so it is important for the project team to explore new avenues. These include:

Carbon Offsets

Carbon trading, offsets and emission reduction schemes are some of the most innovative and challenging topics currently in discussion. The WildEyre project aims to increase the capacity of landholders to make informed decisions on carbon trading by demystifying technical aspects, investigating how schemes might be implemented on Eyre Peninsula and providing information on existing or new schemes within the carbon industry.

Corporate Investment and Offsets

The project area supports various primary industries, many of which are interested in demonstrating corporate social responsibility through offsetting their environmental impact. WildEyre aims to connect these companies with landholders or community groups to achieve positive outcomes for the environment and the community.

Philanthropic Funding

In recent times, valuing the landscape has moved beyond just economics. Many individuals or organisations find great value in knowing a natural asset simply exists, and will continue to exist into the future. They are also often willing to make monetary contributions to an existing conservation strategy, or purchase land which can be managed for biodiversity by local conservation groups.

Federal and State Government Funding

The project team acknowledge the support from the Australian Government's Caring for Our Country funding package. Further funding opportunities will be explored through state and federal funding mechanisms.



Putting the Plan into Action

The most critical step in landscape conservation is to transfer well-intentioned plans into effective, on-ground action. This requires long-term organisational partnerships, a secure and diverse funding base and the engagement of regional communities and landholders.

Above: Mitch Dunnett, Senior Wirangu Traditional Owner; WildEyre Community Workshop, Streaky Bay [photos: Matthew Turner]

HOW TO GET INVOLVED

This document is an invitation for you to become actively involved in shaping the future of the WildEyre project. There are a number of ways individuals and organisations can participate. These include:

Public Meetings

Periodically, the project team would like to meet with community members to receive feedback on aspects of the project, and also to keep them informed about existing conservation programs in the area. As part of our commitment to the region we are keen to provide access to the latest knowledge and resources to increase the capacity of local communities. One way we can do this is to organise for scientists and researchers to visit and speak at public forums. Community workshops will be regularly held to encourage community participation in the program.

Land for Conservation

The WildEyre project aims to conserve biodiversity and conduct ecological restoration activities at a landscape scale. The project team is investigating options to facilitate the purchase or management of land for conservation purposes. The team is also reviewing options for stewardship schemes and aims to support private landholdings to undertake complementary land management activities.

Funding and Resources

The project aims to increase the amount of resources available for conservation works on western Eyre Peninsula. The project team has been successful in attracting Australian Government funding to establish the program, and is seeking to leverage additional investment through a combination of grants, philanthropic contributions and industry partnerships. The WildEyre team welcomes financial contributions to the project

Photography and Landscape Art

There are a number of active local photography and art clubs within the project area. The project team is keen to support local groups in their creative endeavours, and also to create pathways for photographers and artists to get their work in brochures, information booklets and fact sheets. Photos of the WildEyre region can be viewed at: <http://www.flickr.com/groups/wildeyre> Local and visiting photographers are encouraged to post their favourite photos of the WildEyre region.

Research Partnerships

Sound scientific knowledge is fundamental to landscape conservation. It is critically important to utilise the latest scientific knowledge to make informed conservation decisions. In order to facilitate the necessary research, the project team is seeking to develop partnerships with relevant research institutions.

Volunteer Activities

Many of us have skills and resources that we are able to share with the wider community. This may include things like plant propagation, flora/fauna surveys and identification, seed collection, tree-planting and fencing. By volunteering with a local community group through one of the partner organisations, you can contribute to the conservation objectives of the WildEyre plan.

New Organisational Partnerships

The team currently consists of members from five diverse environmental organisations. In the spirit of an integrated and cooperative conservation project, the project team is actively seeking new organisational partnerships. If your organisation would like to contribute to the WildEyre project please contact one of the participating organisations.

CONTACT US

Please contact one of the organisations below to discuss how you might become involved in the WildEyre project.

www.wildeyre.com.au

The WildEyre website aims to promote the valuable conservation work being undertaken on western Eyre Peninsula.

EYRE PENINSULA NATURAL RESOURCES MANAGEMENT BOARD — ph: (08) 8682 7555 • www.epnrm.sa.gov.au

DEPARTMENT FOR ENVIRONMENT AND HERITAGE — ph: (08) 8688 3111 • www.environment.sa.gov.au

THE WILDERNESS SOCIETY — ph: (08) 8231 6586 • www.wilderness.org.au

GREENING AUSTRALIA — ph: (08) 8372 0100 • www.greeningaustralia.org.au

NATURE CONSERVATION SOCIETY OF SOUTH AUSTRALIA — ph: (08) 7127 4630 • www.ncssa.asn.au

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Government of South Australia

Eyre Peninsula Natural Resources Management Board



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