



Eyre Peninsula Coastal Action Plan and Conservation Priority Study

VOLUME 1



Australian Government



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of South Australia

Eyre Peninsula Coastal Action Plan and Conservation Priority Study

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VOLUME 1

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This plan is a coastal conservation assessment and coastal action plan for the Eyre Peninsula coast between Two Hummocks Point in Spencer Gulf to the eastern boundary of Wahgunyah Conservation Park and builds upon the Conservation Assessment of the Northern and Yorke Coast, the Southern Fleurieu Coastal Action Plan and Conservation Priority Study, the Far West Coastal Action Plan and Conservation Priority Study and Metropolitan Adelaide and Northern Coastal Action Plan.

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Cover photos

Front cover (clockwise from top left): Eastern Osprey (*Pandion cristatus*), Andrew Brooks; Australian Sea-lion (*Neophoca cinerea*), Ceduna DENR Office; Entrance Beach, David Armstrong; Mangrove flower (*Avicennia marina ssp. marina*), Sharie Detmar; Hooded Plover (*Thinornis rubricollis*), Jason Quinn.

Back cover: Tern colony, Ceduna DENR Office; Wanna, Coast Protection Board, 2007.



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There are also many other individuals and groups across the region that provide an invaluable contribution in providing information and managing the coastal environment and have assisted in the project.

The project was based on a methodology devised by Doug Fotheringham, Nerissa Haby and Matthew Royal for a study of the Northern and Yorke Natural Resources Management Region (Caton et al. 2007a), which arose from an idea of Tim Noyce from the Department of Environment and Natural Resources.

Executive Summary

This report provides the methodology and results of a conservation assessment and action plan for the coastal area of the Eyre Peninsula NRM region, between Two Hummock Point north of Point Lowly and Wahgunyah Conservation Park, west of Cape Adieu. The Eyre Peninsula Natural Resources Management (EP NRM) Board secured funding from the Commonwealth ‘Caring for our Country’ initiative and commissioned the South Australian Department for Environment and Natural Resources (DENR) to conduct the study. DENR has also provided resources to enable consultants and DENR staff to undertake this project. The project follows the methodology that has been established and used for similar studies in other South Australian NRM regions over the last 5 years.

The aim of the study was to improve the understanding of the region’s coastal natural resources to provide better protection, conservation and management, and to establish conservation priorities for places and areas within the region. The EP NRM Board recognised the need:

- for a detailed review of the region’s coastal natural resource assets, thus establishing a baseline statement for the region,
- to examine the threatening processes impacting on these assets,
- to identify opportunities for more effective management at the local scale and to define specific management actions and their priority, and
- to establish a framework of broad actions and targets to guide the regional community, regional NRM investment and other investment opportunities in the coast.

For the purposes of the assessment a coastal boundary was defined based on natural coastal features such as dunes and salt marshes; where coastal landforms were ill-defined a default distance of 500 metres from the high water mark was used. In order to facilitate the analysis and discuss management issues at the local scale within this coastal zone, it was divided into 85 ‘cells’ or small sub regional landform units with an average mapping length of approximately 27 kilometres. These cells were used as a means to analyse, describe and map significant area.

The study used Geographic Information Systems (GIS) software to collate, analyse and present information retrieved from government databases, together with information from community groups and local and/or specialist experts. Thirty-two conservation and 19 threat themes were used to create 51 digital maps (or ‘layers’). Each layer showed values from 0 to 9 for each pixel on the map: any one layer consisted of millions of such values set out on a fixed grid. Thus conservation values or threat values could be summed for each point on the map of the region. As an example a detailed map of the sum of conservation values and the sum of threat values for the area in and around cell EP10, Franklin Harbour, is shown below in Figures 1.3 and 1.4, Introduction.

Conservation and threat values were determined for all cells, both in detail and as averages for the whole cell. Where high conservation values occur in the same location as high threat values, this was taken to indicate a high priority for action to manage the threat. A major part of the report is the description and analysis of 56 of the 85 cells containing high value areas, including local management action recommendations. Where local conservation values and threats identified a wider regional issue and appropriate action, these have been detailed in the Regional Management Proposals section of the report.

Executive Summary

The authors of the report believe this represents an objective and verifiable way of establishing priority for action in managing conservation values of the Eyre Peninsula coastal region. In the future it could be used as a baseline statement in a long term process of adaptive management.

The final report of the project is in hard copy, and on DVD, which includes the digital maps, data layers, the report and some additional information such as species lists.

Regional management proposals for action are set out below. Local management actions are included in the detailed cell descriptions in Chapter 6.

Regional Management Proposals

[Local management actions derived from individual cell analysis are described in Chapter 6.]

Recommendation 1. Adequacy of Data and Managing Change

The data upon which this project is based is a collation and review as at 2010. But change is occurring rapidly, including change as a result of management actions. In order to continue to manage effectively, survey and monitoring will need to take place in an ordered way in the future.

Objective

- To improve and regularly update the databases on which this project is based, in order to manage change within the coastal region of the Eyre Peninsula.

Actions:

- 1.1 EP NRM Board and DENR to work together to regularly update the databases within the project area. In particular, continue survey work to improve the resolution and reliability of existing floristic mapping; consider specifically mapping coastal plant associations identified by Oppermann 1999; and wetland and grassland plant associations.
- 1.2 EP NRM Board to consider using the coastal conservation methodology for conservation and threat assessment in its future planning for monitoring change and adaptive management.
- 1.3 Ensure that DENR plans for biological survey and monitoring take into account the data deficiencies revealed by this study.
- 1.4 Increase the number of permanent monitoring sites to measure long term change to plant communities along the EP coast, covering the full range of coastal vegetation environments.
- 1.5 Resurvey previous flora and fauna survey sites (such as the Coastal Dune and Cliff-top surveys and salt marsh profiles) to identify and/or monitor change.
- 1.6 DENR to maintain biological surveys of fauna to improve information about: total species within the region; population dynamics; habitat requirements.
- 1.7 Identify flora and fauna records and surveys that are not in the Biological Database of South Australia (BDBSA) (eg. private surveys/records, government surveys not yet entered). Evaluate/ verify data and enter into the BDBSA.
- 1.8 Conduct an extensive fauna and flora survey to enhance existing baseline data, identify species extent and distribution, and validate existing records suggesting range extensions. Particularly focusing on areas with no, or few, current records and species with few records (eg. mammals, reptiles, amphibians and invertebrates).
- 1.9 Support research into fauna ecology and resource requirements in the EP coast.
- 1.10 Support volunteer groups, individuals, community groups, environmental organisations and education bodies in undertaking regular surveys to supplement and update current data.

(NRM/ DENR)

Recommendation 2. Conserving Valuable Areas and Species

Approximately 43% of the study area is within National Parks and Wildlife parks or reserves, vegetation Heritage Agreements or Aquatic Reserves. This demonstrates the conservation significance of the region's coastal natural areas. Protection and management of these dedicated conservation areas could be improved through increased resourcing and further community engagement. However, there are also areas of high conservation value which are important for threatened flora species, fauna species and/or plant communities that would benefit from protection and/or improved management. The study found 11 flora and 19 fauna species recorded within the study area that are listed as threatened under the national *Environmental Protection and Biodiversity Conservation Act 1999* and 65 flora and 74 fauna species within the study area that are listed as threatened under the state *National Parks and Wildlife Act 1972*. In addition, numerous rare and/or endemic plant communities were identified, some of which only occur within the Eyre Peninsula coastal region.

Objective

- To raise the conservation status and management investment in selected significant areas within the region and for selected species and vegetation associations.
- Conserve and protect native flora and fauna species and vegetation communities from threatening processes

Actions:

- 2.1 Protect, improve and (where possible) expand remnant vegetation patches across the region.
- 2.2 Manage and protect the 37 floristic communities identified by the Coastal Dune and Cliff-top Survey as both rare in the State (less than 20 sites in SA) and having >50% sites recorded along the EP Coast (see Section 3.1.2, Table 3.2) (particularly *Triodia compacta*, *Eucalyptus incrassate*, *Leucopogon parviflorus* / *Acrotriche patula*, and *Meleleuca brevifolia* / *Gabnia filum* communities which have 100 percent of records within the Eyre coastal region).
- 2.3 Improve the awareness of and engage the community in threatened species preservation and protection of unique habitat in the Eyre coastal region (e.g. utilising focal species as detailed in Section 3.2) (see also Recommendation 10.3 & 10.7 Capacity Building)
- 2.4 Prevent the drainage, water extraction or alteration of floodplains, wetlands, swamps, creeks and groundwater resources without thorough investigation and research on the potential ecological impacts that may occur and mitigation actions to prevent or minimise these impacts. These areas provide habitat to numerous water dependent plants and animals.
- 2.5 Prepare management plans for parks within the region that don't have plans, notably Acraman Creek CP, Chadinga CP, Fowlers Bay CP, Franklin Harbor CP, Laura Bay CP, Munyaroo CP, Point Bell CP, Sceale Bay CP, Tumbly Island CP and Wittelbee CP. Review / update older reserve management plans across the region, such as Point Labatt CP and Lake Newland CP.
- 2.6 Investigate opportunities to increase the percentage of salt marsh habitats protected under the reserve system.
- 2.7 Investigate opportunities to add high conservation value land to the state's reserve system
- 2.8 Limit or restrict access to known high sensitivity areas (e.g. breeding areas of beach nesting birds and White-bellied Sea-Eagle during nesting seasons, unstable or semi stable dune systems with high conservation values, etc).

Regional Management Proposals

- 2.9 Protect and increase areas of larval food species for butterflies (eg. increase the size and numbers of patches of Berry broombush to aid in the conservation of the endangered butterfly Small Bronze Azure, *Ogyris otares*).
- 2.10 Develop and implement recovery plans for animal and plant species and plant associations that are considered threatened.
- 2.11 Encourage, support and/or undertake monitoring programs for animal and plant species and plant associations that are considered threatened.
- 2.12 Develop and implement species management plans for threatened raptor species (ie. White-bellied Sea-Eagle and Eastern Osprey), including habitat and land management protocols, population monitoring programs, education programs, population conservation goals, recommended areas for research.
- 2.13 Develop and implement shorebird management plans for significant shorebird habitat areas, including management and monitoring strategies such as interpretive signage, fencing off nests, use of chick shelters, temporary signage in breeding territories, permanent, temporal or spatial beach closures to vehicles and off-leash dogs, undertaking and/or supporting ongoing shorebird monitoring programs, community education and awareness programs, eg. “chicks on beach”.
- 2.14 Investigate the impacts of activities permitted along the coast, such as driving on beaches, managing pests and beach access, in areas where sensitive species inhabit (e.g. shorebirds, raptors), particularly during breeding seasons.
- 2.15 Where possible reduce the use of pesticides and chemicals, especially around wetlands and coastal embayments.

(NRM, DENR, Council, community)

Recommendation 3. Climate Change and Improving Ecosystem Resilience

“Ecosystem resilience: A measure of the ability of an ecosystem to withstand and recover from environmental stresses and perturbations.”

(Commonwealth of Australia, 2004, p.40).

Climate change is already occurring: measured trends in sea level change, in mean air and ocean temperatures, in latitudinal migration of the climate belts and climate variability are becoming clear. These changes impact on our natural assets.

On-going climate change underpins many of the regional recommendations for action proposed here. Migration and adaptation of plant and animal species in response to climate change has occurred throughout historic and geologic time. Current adaptation to climate change is problematic because the speed of change is rapid, the barriers to ecosystem migration have increased through clearance, and habitat is heavily stressed by other current threats. There is a need to enhance ecosystem health to allow natural processes such as selection, migration and community composition to occur. Strategies to improve ecosystem resilience are already core business for many land managers; many local actions proposed in the cells section support this work. The threat of climate change underlines the need for renewed effort: in particular, increasing species numbers and combating habitat degradation by exotic species, as well as by erosion. Improving the connectivity between vegetation blocks and ensuring water for wetlands is a clear way to assist plants and animals to adapt to change.

Some ‘no regrets’ adaptations and necessary monitoring are proposed below.

Regional Management Proposals

Objectives

- To build ecosystem resilience to current pressures and as a precautionary adaptation to climate change.
- To begin to adjust now to climate change impacts on coastal habitats.
- To avoid decisions now which compromise future adaptation to change, and avoid unnecessary expense.

Actions:

- 3.1 For the NRM Board & DENR to adopt the vegetation linkages concept as a means of building resilience, and to build partnerships with private landowners, community groups and the Nature Foundation SA, to advance this concept within the coastal lands of the EP region.
- 3.2 Investigate the feasibility of establishing two large Coastlinks projects: (i) from Point Boston to Two Hummocks Point; (ii) from Proper Bay to Wahgunyah CP; using unallotted Crown land, all forms of existing Reserves, existing Heritage Agreements, land purchase and private property.
- 3.3 To facilitate a review throughout the region of areas suitable as buffer zones for salt marsh retreat, together with tidal flows and potential tidal flows in those areas. Also to review establishment of buffer zones for dune retreat. To establish setback buffer areas on the Council Development Plans in order that development now does not compromise adaptation to sea level rise in the future. A regional review of salt marsh and sand dune retreat areas/ buffer zones is also necessary to assist the implementation of the Better Development Plan process. From the Planning SA website - Better Development Plan Policy - Coastal Areas, p.26:-
“8. Development should be designed and sited so that it does not prevent natural landform and ecological adjustment to changing climatic conditions and sea levels and should allow for the following:
 - (a) the unrestricted landward migration of coastal wetlands*
 - (b) new areas to be colonised by mangroves, samphire and wetland species*
 - (c) sand dune drift*
 - (d) where appropriate, the removal of embankments that interfere with the abovementioned processes”*
- 3.4 Investigate opportunities to obtain LIDAR data coverage for the Eyre Peninsula coast to assist in identifying areas vulnerable to sea level rise and climate change.
- 3.5 For DENR and the EP NRM Board to review the coverage of the DENR beach and salt marsh profiles to ensure that adequate monitoring of shoreline, dune and salt marsh changes is carried out. The existing network of DENR profiles of beaches, foredunes, and wetlands will need to be extended to include more locations vulnerable to change resulting from sea level rise/ climate change. Such locations are proposed within the cell descriptions.
- 3.6 Investigate cliff retreat rates for various cliffs and cliff types around the region (eg. establish surveyed marker points).
- 3.7 Undertake a climate change vulnerability assessment on flora and fauna species and vegetation communities.
- 3.8 Currently change in the region is described, in certain aspects, by the existing time series of aerial photography. Because of changing technology in imaging it will be necessary to ensure that future imagery is of appropriate resolution to track coastal changes, such as dune, salt marsh and swamp migration, together with shoreline and cliff edge change.

Regional Management Proposals

- 3.9 Support and/or undertake research into the hydrological and ecological requirements of wetlands, swamps, soaks, lakes and groundwater ecosystems, the possible impacts of climate change on these areas and recommended management actions to conserve these areas.

(NRM, Councils, EP LGA, DPLG, Dept Premier and Cabinet, DENR, Coast Protection Board)

Recommendation 4. Recreational Activities

Recreational activities are popular along the Eyre Peninsula coast, but the vehicle and foot traffic associated with it needs management to reduce or prevent degradation of the features that make the coast such a valuable asset to the region. The numerous impacts along the coast from these activities include wildlife disturbance, vegetation destruction, dune destabilisation, soil disturbance and compaction, weed introduction and litter. Many of these impacts are concentrated around settlements, formal and informal car parks and camping areas.

Off-road vehicle tracks were identified as a significant threat throughout the study area. The mapping undertaken for this project identified a considerable increase in the number of tracks, car parks and camping areas within the coastal area compared to earlier aerial imagery and/or earlier track mapping. The mapping also identified a number of off-road tracks and car parks that are located close to undercut and unstable cliffs, presenting a significant safety hazard. A current baseline map of tracks, car parks and camping areas can be used to guide future management and indicate changes such as the appearance of new tracks or rehabilitation of closed tracks.

A series of actions are listed below to achieve the stated objective: when put together these actions amount to a major project, beginning with improved mapping of tracks, informal camping and parking sites.

Access and off-road vehicle use (tracks)

Objective

- To manage access to beaches, dunes, cliffs, samphire and other coastal areas to reduce damage by vehicles and pedestrians to flora, fauna, coastal habitats and landforms.

Actions:

- 4.1 Establish a process of regularly updating the digital maps of tracks established for this study. Review the mapping taking into consideration high conservation priority areas, destabilised dunes and sensitive coastal areas such as raptor breeding sites, shorebird feeding/ nesting sites and samphire areas that are often very slow to recover from damage.
- 4.2 Review the mapping, in consultation with key players, with a view to rationalising unnecessary, inappropriate and hazardous tracks and rehabilitation of degraded areas.
- 4.3 Determine effective means of closing and rehabilitating tracks and undertake a program to do so, including maintenance of track closures and clear directional signage.
- 4.4 Undertake education and compliance program on the use of unregistered vehicles (eg. quad bikes, trail bikes) on public land, such as coastal reserves, beaches, parks etc.
- 4.5 Develop and implement regional beach driving strategy to minimise impacts of vehicles on beaches, including review/ rationalise locations where vehicles allowed on beaches, impact monitoring program, education program, consistent speed limits, rules and signage.

Regional Management Proposals

- 4.6 Regional review of beach boat launching locations, with a view to monitor impacts and rationalise locations.
- 4.7 Review pedestrian access in high visitation areas, with a view to formalise and maintain access in locations where unrestricted access is causing damage.
- 4.8 Develop coastal access infrastructure maintenance program, using the information from the EP NRM coastal infrastructure audit.
- 4.9 Work with other coastal NRM regions and LGAs to develop a consistent state-wide approach to ORVs.

(DENR, NRM, Councils, SAPOL, DTEI)

Formal and informal car parks and camp sites

Objective

- Minimise the impact of camping and car parks on the natural environment.

Actions:

- 4.10 Regularly map and monitor impacts of informal camping and car parks. Review locations, management and need for camping and car parks in those locations. Close, rehabilitate, sign and maintain areas inappropriate for camping and car parks. Formalise, manage & maintain (eg. develop camping management plan, fencing, signs, weed management) areas where camping and car parks are permitted.
- 4.11 Monitor, manage, maintain and/or upgrade formal camping areas. Develop local and/or regional camping management plan, with actions to minimise visitor impacts, eg. barriers/fencing to prevent spread and informal tracks, signage, provision of appropriate amenities, weed management, waste/ litter management, regular patrols/ inspections, education programs, maintenance of facilities/ infrastructure.
- 4.12 Encourage and investigate opportunities for developing camping areas on privately owned and managed land with the view to rationalise camping areas on public land.
- 4.13 Consider a survey of campers to determine their expectations and/or wants for the area.

(NRM, DENR, Councils, DTEI)

Recommendation 5. Weeds Strategies / Priorities

Collation of existing vegetation surveys, together with additional information provided by EP NRM regional staff, suggests this region has a high level of weed threat. Entry points for weeds are widespread and include ORV tracks, car parks, camping and agricultural areas. In addition, the proximity of high value conservation areas to development nodes and settlements places vegetation at risk.

Objective

- To manage weed threats in high importance areas as detailed in this report through recovery and action plans focused on red alert and declared non-indigenous species.

Regional Management Proposals

Actions:

- 5.1 Develop and implement local and regional weed management plans (including monitoring, recording and mapping weed species, removal and rehabilitation as required).
- 5.2 Develop a centralised GIS based storage and collection system that links into State databases.
- 5.3 Establish permanent vegetation survey and monitoring sites to detect changes in weed extent and impacts.
- 5.4 Support research into improved methods of weed control (particularly for high impact or invasive weeds such as Polygala) and impacts of weeds on native coastal species, communities and habitats.
- 5.5 Protect high conservation value areas from weed invasion; identify areas to prioritise for diligent maintenance of “weed free areas”.
- 5.6 Develop a weeds watch early warning system with a rapid response capability to tackle coastal weed outbreaks.
- 5.7 Education initiative targeting residents, community, holiday home owners, plant nursery suppliers and councils on the identification and impact of known and potential weed species and suggested management actions, including information on garden plants that can become weeds and alternative native species that can be used.
- 5.8 Run workshops for the local community to learn more about landscaping with local species and creating biodiversity in their garden.

(NRM, DENR, Councils, Community)

Recommendation 6. Introduced Animals

A number of introduced animals have been recorded in the Eyre Peninsula coast, including rabbits, foxes, cats, starlings and black birds. These species are known to impact on native wildlife through predation or competition.

Objective

- Minimise the impact of introduced fauna species on native flora and fauna.

Actions:

- 6.1 Establish a monitoring program for pest animals, particularly rabbits (and rabbit warrens), foxes and feral cats to identify distribution, abundance and impacts.
- 6.2 Develop and implement an introduced animal management strategy for Eyre Peninsula, including the establishment, continuation and/or expansion of control programs for introduced species where necessary and monitoring the effectiveness of control programs.
- 6.3 Support private landholders in pest control effort.
- 6.4 Conduct or support research into the impacts of pest animals on native flora and fauna.
- 6.5 Conduct or support research into improved methods and tools for monitoring and controlling pest animals.

(DENR, NRM)

Recommendation 7. Potential Acid Sulfate Soils

See

[http://www.environment.sa.gov.au/Conservation/Coastal Marine/Coast Protection Board/Coastal acid sulfate soils](http://www.environment.sa.gov.au/Conservation/Coastal_Marine/Coast_Protection_Board/Coastal_acid_sulfate_soils)

Objective

- To avoid the inadvertent disturbance of potential acid sulfate soils.

Actions:

- 7.1 The EP NRM Board in partnership with the Coast Protection Board, work with Councils to ensure that within Development Plans: (i) Areas mapped as hazardous are appropriately zoned. (ii) Principles of such zones take regard of potential coastal acid sulphate soil.

(NRM, Coast Protection Board, Councils)

Recommendation 8. Aboriginal Sites / Indigenous Consultation and Engagement

Objective

- Identify, manage and protect sites of Aboriginal significance and engage, involve and educate the local and broader indigenous community in coastal management.

Actions:

- 8.1 Encourage and support Aboriginal communities to register sites of Aboriginal significance with the Aboriginal Affairs and Reconciliation Division, Department for the Premier and Cabinet.
- 8.2 Encourage and support further surveys through the area to identify areas of Aboriginal significance, particularly a regional, all-encompassing Aboriginal cultural heritage survey.
- 8.3 Support and assist management and protection of sites of Aboriginal significance.
- 8.4 Enhance traveller awareness of conservation values, threatening processes and Aboriginal heritage on signs at key car parks and through other interpretive media.
- 8.5 Explore and promote opportunities for training and employing Aboriginal people in coastal land management.
- 8.6 Capture, document and use local indigenous knowledge on the coastal environment and coastal land management.
- 8.7 Engage Aboriginal communities to identify and address cultural heritage values in the coastal environment and coastal land management.
- 8.8 Engage and/or consult local Aboriginal people prior to undertaking land management works to ensure significant sites are not impacted.

(NRM, DENR, Dept Premier & Cabinet)

Recommendation 9. Capacity Building and Community Awareness

The effectiveness of many coastal management actions relies heavily on local and non-local community awareness and understanding.

Regional Management Proposals

Objective

- To build capacity in managing coastal areas and raise community awareness of coastal conservation and threat issues.
- To maximise the benefit of Coastcare effort within the region.

Actions:

- 9.1 Educate and involve local school children in coastal land management and the values of their nearby natural areas (e.g. plants, animals and heritage; site rehabilitation; clean up projects; monitoring programs).
- 9.2 Collaborate with educational institutions (e.g. TAFE) to develop and implement programs to increase community understanding about the coastal environment, human impacts and management options
- 9.3 Enhance community awareness of: (i) coastal areas in their natural state; ii) the value and function of birds of prey; (iii) the pressures on beach nesting shorebirds; iv) the impacts of driving on beaches; v) the threat of weeds and garden escape plants; vi) the heritage values of the coast; vii) impacts of marine debris.
- 9.4 Support and encourage native fauna and flora monitoring programs along the EP coast.
- 9.5 The NRM Board undertake and promote a guide for coastal urban gardens that encourages the use of local species. Develop and promote a pamphlet identifying known and potential weeds with suggestions for action.
- 9.6 Councils, the NRM Board and DENR continue to support and guide local Coastcare and 'Friends of' groups and to consider the need for greater emphasis on maintenance and follow up, to back up community effort.
- 9.7 Continue to encourage, support and work with community groups on coastal management activities, such as interpretive events, volunteer opportunities, media releases and further development of interpretive signs, guides and walks.

(NRM, Councils, DENR)

Recommendation 10. Implementation of this Project

Objective

- The actions to implement this project cross existing lines of responsibility and traditional concerns. Stakeholders will need to be made responsible to drive the process.

Action:

- 10.1 For the NRM to form working groups and appoint officers to drive the implementation part of the process of this project.

(NRM, DENR, Councils)

