

DEPARTMENT OF ENVIRONMENT AND CONSERVATION

**SEDGELANDS IN HOLOCENE DUNE SWALES RECOVERY TEAM
ANNUAL REPORT
2006**



Sedgeland at Lake Richmond. Photo: Val English

By Val English

For the 'Sedgeland in Holocene Dune Swales' Recovery Team

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Summary

The Sedgeland in Holocene Dune Swales' community was listed as a critically endangered threatened ecological community (TEC) in 1996. The community is also listed as Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

The Recovery Team for the Sedgeland in Holocene Dune Swales was formed in June 1996. The Team coordinates the implementation of the Interim Recovery Plan that was completed in May 2002. This report outlines the progress made in implementing the Interim Recovery Plan between January and December 2006.

Members of the Team dealt with a series of issues in 2006 including negotiations and advice about areas that contain the sedgeland community and are the subject of proposals for reservation or development. The group worked in liaison with interested local groups, the Department of Environment and Conservation (DEC's) Regional Parks Unit and Swan Coastal District, in undertaking these negotiations.

Members of the Recovery Team were involved with negotiations to minimise impacts with regard to development of land immediately adjacent to the sedgeland community at the Port Kennedy Golf Course Stage 2, the proposed location of the new desalination plant and associated infrastructure, and the possible impact of the Cape Peron Marina development on sedgelands at Lake Richmond. Advice for the golf course site included appropriate monitoring of vegetation and hydrology, and contingency plans for adverse hydrological events.

In liaison with DEC's Regional Parks Unit, the Recovery Team continued to provide advice with regard to management of the area adjacent to the Lark Hill Regional Sporting and Recreation Complex that contains the sedgeland TEC. This included recommendations relating to the Environmental Management Plan for the complex such as improvements to the monitoring component to include appropriate control sites.

Fences were erected under the direction of DEC's Regional Parks Unit and Swan Coastal District to help protect two areas for which reservation negotiations are underway. Both areas are currently vested with Landcorp. The sites both contain the sedgeland community and are located on Bakewell Drive, Port Kennedy and at Industrial Park 14 (IP14), located in Rockingham. The fences are intended to help prevent damage by four wheel drives, illegal rubbish dumping, and arson. Rubbish was also removed from the Bakewell Drive site, including car bodies, general and garden waste that contained weed seeds.

Under the Direction of DEC's Regional Parks Unit, weeds were mapped and specific weed control undertaken in Port Kennedy Scientific Park. *Juncus acutus* was mapped and control implemented in Lake Walyungup and Lake Coo롱up Parks.

Four new quadrats were set up in a series of sedgeland areas in 2006 by DEC's Species and Communities Branch. The flora species present in the plots was scored at two time points. The data from the plots will be used to help monitor condition, and composition in sedgelands located in Golden Bay, Anstey Swamp, and IP14.

Background

The Sedgeland in Holocene Dune Swales threatened ecological community (TEC) was listed as critically endangered in 1996. The community is also listed as Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

The community occurs in linear damplands and occasionally sumplands (wetlands) between Holocene dunes formed over the last 7,000 years. Typical native species in the community include the shrubs *Muehlenbeckia adpressa*, *Acacia saligna* and *Xanthorrhoea preissii*, and the herbs *Baumea juncea*, *Isolepis nodosa*, and *Poa porphyroclados*.

When conserved as a representative unit the range of different ages of the wetlands along the coastal evolutionary sequence, in association with their geomorphic history, provide important opportunities for research on wetland evolution.

The community is recommended for separation into two subgroups; 'Sedgeland in Holocene dune swales of the southern Swan Coastal Plain' and 'woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain'. Both subgroups meet the criteria for critically endangered. The process of endorsement of the separation of the community into these sub-groups has not yet been completed.

There is a total of 62 occurrences of the Sedgeland in Holocene dune swales sub-group, and these occurrences covers about 52 ha. There are a total of 38 occurrences of the other sub-group – the woodlands over sedgeland in Holocene dune swales, and these occurrences cover about 110 ha.

The sedgeland community is threatened by clearing, changes to hydrological processes, weed invasion, inappropriate fire regimes, erosion by wind and water, disturbance due to recreational use/maintenance activities, and grazing by rabbits.

The Recovery Team for the Sedgeland in Holocene Dune Swales was formed in June 1996. The Team coordinates the implementation of the Interim Recovery Plan that was completed in May 2002. This report outlines the progress made in implementing the Interim Recovery Plan between January and December 2006.

Recovery Team

Members of the team include:

- Ms Valerie English (Chair) (Species and Communities Branch, DEC).
- Dr Neil Gibson (Woodvale Research, DEC)
- Dr Phil Jennings (Murdoch University, and community representative)
- Mr Ian Barker (City of Rockingham)
- Ms Renee Miles (Regional Parks Unit, DEC)
- Mr Roley Sharpe (community representative) joined the Team in 2006.

The Recovery Team met on 24 March 2006. Members of the team dealt with a series of issues in 2006 including areas that contain the sedgeland community and are the subject of proposals for reservation or development.

IMPLEMENTATION OF RECOVERY ACTIONS DURING 2006

Sedgeland community in Port Kennedy Golf Course Stage 2

Members of the Recovery Team provided advice and recommendations with regard to management requirements of wetlands in Port Kennedy that contain the sedgeland TEC. This advice included comments on vegetation and hydrological monitoring, and for contingency plans for hydrological issues.

The sedgelands at the site are proposed to be included in Class A reserves but the issue of who will manage them has not yet been decided.

Lark Hill Sporting and Recreation Complex

In liaison with DEC's Regional Parks Unit, members of the Recovery Team provided comment on the Lark Hill Regional Sporting and Recreation Complex. This incorporated recommendations with regard to the Environmental Management Plan including upgrading the specific monitoring regime for the sedgelands to add sites in adjacent areas such as within Port Kennedy Scientific Park as 'control areas' to verify the results of monitoring at the sporting complex site.

Proposed Desalination Plant

There was a proposal to put the inlet and outfall for the Water Corporation desalination plant through Port Kennedy Scientific Park, and the Recovery Team provided comment on this and the pipeline route. Members of the Recovery Team also provided comment on the two possible sites for the proposed desalination plant within IP14.

A request was also made to Water Corporation for the Recovery Team to be added to the stakeholders list for the desalination plant development.

Cape Peron Marina Development

Members of the Recovery Team provided comment on the possible impact of the proposed Cape Peron marina development on the water quality in Lake Richmond, and hence possible impacts to the sedgelands that surround the lake.

Proposed Additional Bush Forever site, Bakewell Drive, Port Kennedy

A fence was erected to protect a proposed Bush Forever additional site that contains the sedgeland community on Bakewell Drive, Port Kennedy using DEC funds from an 'offset' for a development. DEC's Regional Parks Unit coordinated the fencing project, which is designed to help prevent further damage from illegal access, rubbish and vehicle dumping, and fires lit by arsonists. Rubbish was also collected from the site prior to the fence being completed, and this included removal of car bodies, garden and general waste. The garden waste had the potential to increase weed invasion.

Recovery Work on the TEC in Regional Parks

DEC's Regional Parks Unit coordinated mapping of weeds in Port Kennedy Scientific Park and specific weed control, using funds from a Wetlands Conservation Grant. Weeds mapped include *Euphorbia terracina* (Geraldton carnation weed), *Trachyandra divaricata* (dune onion weed) and woody weeds. Control works have focused on protection of the occurrences of the sedgelands TEC within the park. *Juncus acutus* (sharp rush) has been mapped and control implemented in Lake Walyungup and Lake Cooloongup Regional Parks. Under the direction of DEC's Regional Parks Unit, a contractor has completed a Weed Control and Rehabilitation Plan for Rockingham Lakes Regional Park. Friends of Rockingham Lakes have requested funds for strategic weed control.

Industrial Park 14

A fence was erected to increase protection for the sedgeland community at IP14 using DEC funds from an 'offset' for a development. DEC's Swan Coastal District coordinated the fencing project which is designed to help prevent further damage from illegal access, rubbish and vehicle dumping, and fires lit by arsonists.

Vegetation Monitoring

Four new quadrats were set up in a series of sedgeland areas in 2006. The flora present in the plots was scored at two time points – in spring and early summer, to help ensure that most herbs were recorded. The data from the plots will be used to help monitor condition and composition in sedgelands located in Golden Bay, Anstey Swamp, and IP14.

Implementing the Interim Recovery Plan

This section summarises progress on implementing actions in the Interim Recovery Plan during 2006.

3.2 Identify all occurrences of the community

Occurrences of the community, particularly those significant in completing a geomorphic age sequence, will be identified.

The number, age and extent of occurrences of the community on the Rockingham / Becher Plain and other likely areas, as listed below will be clarified:

- (i) The north eastern portion of the Becher Plain and the Secret Harbour area:*
- (ii) Holocene dunes with wetlands around Preston Beach.*
- (iii) South of Lancelin,*
- (iv) Cheynes Beach,*
- (v) Dunsborough,*
- (vi) Leda;*
- (vii) near Lakes Cooloongup and Walyungup.*

Four new quadrats were set up in a series of sedgeland areas in 2006. The flora present in the plots was scored at two time points – in spring and early summer, to help ensure that most herbs present were recorded. The data from the plots will be used to help clarify the occurrence of sedgelands in Golden Bay, Anstey Swamp, and IP14. Other plots are planned for Preston Beach as part of the DEC's Swan Bioplan.

3.3 Liaise with relevant groups to implement this IRP

A number of the occurrences of the community are managed by authorities other than the Department, are unvested, or privately owned. The involvement, wherever possible and practical, of land managers, local community groups and industry in the recovery of the community is therefore essential to the recovery process.

Other stakeholders should be consulted on management of the community as they are identified.

In 2006, the Recovery Team continued to liaise with numerous groups including Local Government, Industry and the local community to implement the recommendations in the Recovery Plan.

3.4 Minimise further clearing of the community

Further clearing or destruction by other means especially of good examples of the older stages of the wetland will be minimised wherever possible by acquisition, negotiation and planning.

Members of the Recovery Team have provided advice and recommendations with regard to the possible reservation of areas of the community at Port Kennedy Golf Course Stage 2, proposed additional Bush Forever site – Bakewell Drive Port Kennedy, IP14, and other areas proposed for development. Negotiations are continuing for a number of the sites.

3.6 Maintain hydrology and water quality

A strategy will be designed to ensure watertable height and water quality remain appropriate to the natural wetland community, through monitoring and ongoing management. This strategy will be incorporated into the full Recovery Plan if required.

Members of the Recovery Team have continued to provide advice to decision making authorities with regard to protection of the sedgeland community from impacts of hydrological change. Advice was provided on areas including Port Kennedy Golf Course Stage 2, Lake Richmond and Lark Hill.

3.9 Design and implement a weed control strategy for the community

For areas within the Rockingham Lakes Regional Park, this strategy will be done as part of the weed control strategy for the Regional Park. Weed removal and control is predominantly required in deeper wetlands (Typha) and on the edges of the threatened community.

Euphorbia terracina and Trachyandra divaricata are currently threatening the sedgeland occurrences at Port Kennedy Scientific Park, with Juncus acutus and Typha orientalis threatening the occurrences at Lake Coo롱up and Lake Walyungup.

Regional Parks Unit have coordinated mapping of weeds in Port Kennedy Scientific Park, and specific weed control using a Wetlands Conservation Grant. *Juncus acutus* has been mapped and weed control implemented in Lake Walyungup and Lake Coo롱up Regional Parks.

3.11 Report on success of management strategies for wetlands

Annual reports will be prepared by the Recovery Team.

This report completes this action for 2006.

3.26 Negotiate for appropriate management of other occurrences in Port Kennedy, outside Port Kennedy Scientific Park

The land tenure of the occurrences of the sedgeland community north of Port Kennedy Drive, and between Bakewell Drive and Ennis Avenue will be identified. Appropriate management actions to conserve the community will then be determined, including negotiations for declaration of areas as conservation reserve if necessary.

In consultation with DEC's Regional Parks Unit and DEC's Swan Coastal District, members of the Recovery Team have provided advice and recommendations with regard to possible reservation of areas of the community in Lot 17 Bakewell Drive, IP14, and at Port Kennedy Golf Course Stage 2. Negotiations are continuing for a number of sites.

3.31 Incorporate management strategies into planning for the Lark Hill Regional Sport and Recreation complex

Planning for the Lark Hill Regional Sport and Recreation Complex needs to address reservation of wetland areas, and adequate buffers around each wetland site; controlling access through fencing; developing and implementing an appropriate fire regime; monitoring and responding to wetland condition, water levels and quality; and weed and rabbit control.

Members of the Recovery Team have continued to provide advice and recommendations with regard to monitoring of the wetlands and hydrology at this site.

ASSESSMENT OF PROGRESS TOWARDS MEETING CRITERIA FOR SUCCESS AS DESCRIBED IN RECOVERY PLAN

Criteria for success in Interim Recovery Plan:

- *An increase in the area, number of occurrences, and completeness of a geomorphic age sequence of this community under conservation management.*

Ongoing - see above: members of the Recovery Team are involved with ongoing negotiations and provision of advice about areas that contain the sedgeland community and are the subject of proposals for reservation.

- *Maintenance in terms of diversity and basic composition of native species (as described in Gibson et al. 1994).*

Ongoing - see above: baseline data on condition have been collected for the sedgeland community in Port Kennedy Scientific Park, and permanent monitoring plots were placed in occurrences at Bakewell Drive Port Kennedy in 2002. In 2006 additional plots were placed in IP14, Golden Bay, and Antsey Swamp. The data will also be added to and compared with the original dataset held in the Gibson *et al* (1994) report 'A floristic survey of the southern Swan Coastal Plain'. In addition, mapping and control of specific weeds was continued in Port Kennedy Scientific Park. Baseline weed mapping, and control of *Juncus acutus* was implemented in Lake Walyungup and Lake Cooloongup Parks.

- *Maintenance of water levels and quality in the wetlands that contain the community.*

Ongoing: Hydrological data are being continually being collected for areas that contain the community. Detailed data are being collected for areas adjacent to development areas including Lark Hill, Port Kennedy Golf Course Stage 2, and specific sites in some Regional Parks. Long terms trends are yet to be determined.

- *Maintenance or improvement in the condition and extent of the community including reduction of exotic species*

Ongoing - see above: Weed control was continued in 2006 in Port Kennedy Regional Park, Lake Walyungup and Lake Coo loongup Regional Parks, included collection of data on weed levels.

References:

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Government of Western Australia (2000). *Bush Forever*. Department of Environmental Protection. Perth, Western Australia.