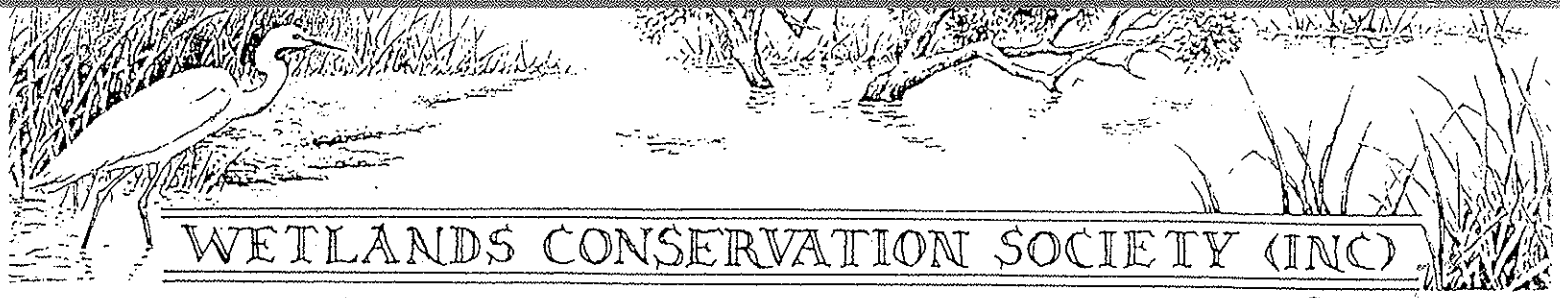

# WETLANDS CONSERVATION SOCIETY (INC)

(6) a to t

c/- 14 Stone Court, Kardinya, WA 6163

16 July 1995

The System Six Study Team
Department of Environmental Protection
141 St George's Terrace
Perth WA 6000

Dear Sir,

**System Six Review**

The Wetlands Conservation Society wishes to make a submission to the System Six Review. This submission is in two parts. Firstly some comments on the general principles and secondly some specific nominations.

**(1) General Principles**

The original System Six Red Book, published in 1983, included 19 general recommendations. Many of these are now irrelevant or outdated. Recommendations 1 - 6 relate to the management of State Forests. These have been overtaken by events. It is now clear that the only effective way to conserve State Forest is to place it in national parks or nature reserves. There is an urgent need to set aside a comprehensive and representative system of forest reserves and this should be part of a new general recommendation.

Recommendations 7 - 12 have also been overtaken by events. Many of the areas recommended for protection as reserves have been destroyed (eg. Casuarina M98, Buckland Hill M55, Port Kennedy M106, etc.) Many others have not been established because of CALM's reluctance to take on new reserves without additional funding. Perhaps these reserves should be vested in other authorities (eg. local government, community groups, LCDCs, etc.) if CALM are unwilling to accept them. The Port Kennedy LCDC has done an outstanding job of managing that reserve, for example, at little cost to the WA Government.

Recommendations 13 and 14 are still relevant and they should be supplemented by a recommendation about how this process will be funded. A regional improvement fund like the MRIF should be established to facilitate the acquisition of land for parks and recreation in regional areas.

Recommendations 15 - 17 need very careful attention. Although the Ministry for Planning has done quite a good job of identifying and resuming land for Regional

Parks, CALM has failed to co-operate and so far we still do not have any legally established Regional Parks. The WCS believes that the Regional Park Concept is extremely important in the System Six Area because of the multiple uses of reserves. The concept of a regional park as an area for conservation, recreation and landscape protection is now well established. We have least confidence in CALM's willingness to manage these Parks and we have proposed that MFP should continue to manage them until all of the policy and management issues have been resolved. We believe that funding should come from local authority rates, land tax and development tax. Ultimately a Regional Parks Authority may be the best body to manage them. Because they are so different to national parks and nature reserves the RPA should be quite different from the NPNCA and have its own budget. It should work closely with CALM, MFP and the local authorities.

Recommendations 18 and 19 are still relevant and have been partially implemented. However recommendation 18 does not specify which agency should fund and coordinate this task. This should be addressed in the update.

The General Recommendations should include an additional set which relate to the funding and implementation of the specific recommendations. We believe that there is a need for an implementation committee which will set priorities and review progress. A major review or progress report should be required every three years. A funding mechanism for implementation and management of the System Six conservation estate should be clearly identified in the general recommendations. The failure to do this was one of the main reasons why the original System Six exercise was so unsuccessful.

**(2) Specific Recommendations**

I am aware that the DEP has provided a detailed nomination form. However, we wish to nominate so many areas that it is quite impracticable for us to fill in such detailed forms. Most of the areas we wish to nominate are already documented in official Government reports, so the degree of detail requested is unnecessary. However, I would be happy to supply any additional information you require for any of the nominations we have made. Please call me on 337 7113 (h) or 360 2274 (w) or 310 1711 (fax) if you need further information.

Our specific recommendations for new areas to be included in the System Six Report are :

(a) The Spectacles Swamps near Kwinana. These are part of the Beeliar Regional Park and are fully described in the Planning Report for that Park. They are also zoned P & R in the MRS.

(b) Long Swamp on Hope Valley Road, Kwinana. This is also included in the Beeliar Regional Park. It is the last of the wetlands in the western chain of the Cockburn Wetlands. It is privately owned.

(c) Bollard Bulrush Swamp in Wellard. This is also part of the Beeliar Regional Park

(d) Tamworth Hill Swamp in Baldivis. This is part of the proposed Rockingham Lakes Regional park. It is fully documented in the ecological study of the Rockingham lakes carried out by V and C Semeniuk for the Australian Heritage Commission. It is zoned for Parks and Recreation in the MRS and it is affected by a mining claim.

(e) Anstey Swamp, Baldivis. This is also a part of the proposed Rockingham Lakes Regional Park. It is owned by the MFP and is zoned for Parks and Recreation. It is fully documented in the Semeniuk study and by the EPA in its original report on the Secret Harbour project.

(f) Paganoni Swamp, Baldivis. This wetland is an outstanding conservation area. It is owned by the MFP and is zoned for Parks and Recreation. it is fully documented in the Semeniuk study and in the Wildflower Society's nomination of this reserve to the Register of the National Estate.

(g) Lark Hill wetlands. This area lies adjacent to Port Kennedy M106 and contains some important wetlands and parallel dune formations. It is fully described by the Australian Heritage Commission in its listing of the area. The land is owned by the MFP and is zoned for Parks and Recreation. It is intended for inclusion in the Port Kennedy Scientific Park.

(h) Jandakot Botanical Park. This area is fully documented by the MFP in its Planning study for the Jandakot Botanical Park. It includes some areas such as M97, M98, M99 and M100 which are already in the System Six Red Book. However, there are several other important reserves in this area which should be included in the System Six Report. All of this land is reserved for Parks and Recreation and most of it is owned by the State.

(i) Piney Lake, Winthrop. This wetland was not included in System Six. However, it is part of the Beeliar Regional park and supports a diverse range of waterfowl and has some remnant vegetation. The City of Melville recently completed a management plan for this reserve.

(j) Blue Gum Swamp, Mt Pleasant. This wetland is an important wildlife refuge. It is well managed by the City of Melville and is being rehabilitated by a local group. It has a management plan, prepared by the City of Melville. It could be incorporated into M73 as it is very close to Booragoon Lake.

(k) Brixton Street Wetlands, Gosnells. These important wetlands should be added to M69. Their importance is well documented in the EPA assessment of the housing proposals for this area.

(l) Ken Hurst Park. Leeming. This is an important area of wetland and banksia woodland adjacent to M94. It contains declared rare flora as indicated in the Floristic Study of the Swan Coastal Plain. The Murdoch Branch of the Wildflower Society has done a detailed flora survey of the site. Contact Diana Corbyn for details.

(m) Twin Bartram Swamp, Hird Road Swamp, Solomon Road Swamp and Gibbs / Russell Swamp in Jandakot. These small wetlands are the best remaining examples of the Jandakot suite of wetlands. They are reserved in the local open space system and are well documented by V. Semeniuk in the report to Gold Estates on Wetlands East of Thomsons Lake.

(n) Creery Wetlands. These important samphire marshes should be added to C50 (Peel Inlet). Their values are fully documented in the Bamford Report which was attached to the proposal for the Harbour City Canal Estate.

(o) Vasse - Wonnerup Regional park. The whole area of the Broadwater, Deadwater and the Vasse Wonnerup estuaries should become a regional park. This concept should be proposed in the System Six update.

(p) Cockburn Wetlands - Eastern Chain M93. The boundaries of this area should be modified to coincide with the boundaries of the Beeliar Regional Park.

(q) Folly, Maramanup, Duck and Beenyup Pools, Baldivis. These small pools on the Folly Drain are important breeding and feeding areas for wildlife. The Folly Drain is an important wildlife corridor and its conservation value should be recognised in the System Six Report.

(r) West Corio Swamp, Karnup. This is an important breeding area for the straw-necked ibis. It should be protected. The EPA did an assessment of it several years ago when sand mining was proposed.

(s) Serpentine River Valley. The entire length of the Serpentine River and its flood plain should be listed in the System Six Report. It is a major wildlife corridor and a habitat for many species. It should be recommended as a regional park.

(t) Wilbinga and Guilderton. Two large blocks of coastal heathland south of the mouth of the Moore River. The Wilbinga block was proposed as a land swap for M1 which has been approved for subdivision. These blocks are adjacent to C12 and together provide an outstanding opportunity to conserve the best remaining transect of coastal vegetation in the northern part of System Six.

If you require further information about any aspect of this submission, please contact me. I would like some feedback on your decision about these areas.

Yours faithfully,

Philip Jennings
President

f.

# SYSTEM 6 BUSHLAND SUBMISSION FORM
## FOR CONSIDERATION IN THE UPDATE PROGRAMME

If you wish to submit more than one area for consideration in the System 6 update, please use a separate form for each area.

Please fill in each section giving as much information as possible.

*LOCATION, OWNERSHIP AND ZONING OF THE AREA*

**1. Location** Bollard – Bullrush Swamp

**Please give as accurate and detailed a description as possible of the site location**

*Please include either a hand drawn or copied map showing the area of the area*

a) Bordering Roads: BERTRAM, WELLARD, JOHNSON.

b) Nearest Corner: .....

c) Lot Number: ..... Street Number: .....

d) Town/Suburb/Location: .....

e) Local Council: .....

f) Site Name (if any): .....

g) Approximate size of the area (ha): .....

h) Please locate the area on a map and give us map references if possible:
See attached

i) Map: ..... Streetsmart /UBD/Other: .....

j) Map no.: .....

k) Grid Ref: .....

l) Please give any other information that may help us to find the location:

.....

m) Are you aware of any development proposals that are likely to affect the area?

.....

.....

**NOTE: Areas that have already been given development APPROVAL should not be nominated**

*Please fill out those questions that you can answer*

**2. Who owns the area?** (If owned by the person/s making the nomination please indicate) .....

Numerous owners

**3. If you own the area, and may be interested in participating in conservation on private land initiatives please indicate** (and leave your name and address at the end of this submission form) .....

**4 .What is the area zoned?** (please indicate whether zoning is Town Planning Scheme or Metropolitan Region Scheme) ..... Rural

*CAN YOU TELL US A LITTLE ABOUT THE. PHYSICAL CHARACTERISTICS OF THE AREA*

**5. Why do you consider this area important?** (Refer to Guiding Issues paper)

.....

.....

**6. What is/are the soil type/s and colours ?** .....

Type: Sand/Clay/Gravel/Loam/Silt
Colour: White/Grey/Brown/Orange/Yellow/Red/Black

**7. Does the area have any special features such as unusual landforms / landscapes that still retain their natural vegetation?** Yes/No

If yes, what are they? .....

.....

.....

**8. Is the area a wetland or does it include a wetland?** .....

If yes, what kind of a wetlands is it?

a) lake

b) river

c) stream

d) swamp

e) estuary

f) seasonally wet

g) other

9. What percentage of the wetland is open water in summer? .....

*CAN YOU TELL US A LITTLE ABOUT THE VEGETATION /FAUNA ON THE NOMINATED AREA.*

10. What percentage of the area is indigenous vegetation? .....

11. If the area includes regions cleared of native bushland please indicate reasons for the inclusion. .....

.....

12. Has any previous flora or fauna survey work been done on the area? .....

If yes, please give details of the work .....

.....

.....

13. How would you rate the condition of the native bushland? (see attached table)

a) pristine
b) excellent
c) very good
d) good
e) degraded
f) completely degraded
g) don't know

14. Please indicate the disturbances affecting the area and where appropriate the percentage of the area disturbed.

a) Partial clearing
b) fragmentation
c) Selective removal of species: timber cutting, wildflower picking, mowing dieback and other plant diseases
d) Fire regime, including intensity, season and frequency
e) 'Enrichment plantings' that is plantings of species not found in that community
f) Weed invasion
g) Animal impact: horses, foxes, rabbits, cats, dogs, camels, goats etc
h) Soil movement, both removal and dumping
i) Changes in water regimes; flooding, drainage and watering
j) Salinity
k) Fertiliser drift and along waterways nutrient influx
l) Mining, including that for road works

m) Grazing: stock, overgrazing by feral or native mammals

n) Proliferation of tracks, fire breaks and walk trails

o) Off-road vehicle use

p) Use as service corridors by the SEC, Main Roads, Water Authority.

(Source: B Keighery. Bushland Plant Survey, September 1994)

**15. Does the area contain any plant species of special interest that you know of?** (eg. declared rare flora, priority taxa, outlier populations) .....

Do you know what they are? .....

.....

**16. Do you know of any native animals that use the area?** .....

Can you list those you know of? (birds, mammals, reptiles, amphibians etc)

.....

**17. Is the area used by any native animals of special interest?** (eg. endangered species, large/important populations).....

If yes, please name them and indicate source of information

.....

.....

*CAN YOU TELL US A LITTLE ABOUT THE SURROUNDING AREA*

**18. Are there any bushland areas (including wetlands) near to this area?**
.....

If yes, how close are they ? .....

.....

.....

Are they already conservation reserves? .....

What is their approximate size? .....

**19. Does the submitted area link other bushland areas?** .....

.....

.....

**Please attach any additional information about the area which may be of use when assessing it.**

Subm 8



. The Spectacles is worthy of reservation as a conservation area. Its function should be primarily conservation with very limited recreational use, restricted to activities which cause minimal disturbance. There would be merit in preventing vehicle access. The current good condition of the wetland could be largely attributed to Alcoa's good fences.

9.13.10 REFERENCES

Coy, N J (1984), 'The Serpentine: a history of the Shire of Serpentine-Jarrahdale'. Shire of Serpentine-Jarrahdale, Western Australia.

Gozzard, J R (1983), Fremantle Part Sheets 2033 I and 2033 IV. Environmental Geology Series, Geological Survey of Western Australia.

Taggart, N (1984), 'Rockingham looks back'. Rockingham Historical Society, Western Australia.

## 9.14 BOLLARD BULLRUSH SWAMP NPM

### 9.14.1 GENERAL INFORMATION

LOCAL AUTHORITY: Kwinana Town Council
MRS ZONE: Rural
RESERVE NUMBERS: Drain reserve only; remainder freehold land
MANAGEMENT: Private landowners
SYSTEM 6 RECOMMENDATION: n/a
WAC CLASSIFICATION: LE.f.l.se.c. (modified)
WATER RESERVE: Peel Groundwater Area
ROADWORKS: Wellard Road - Important Regional Road
DRAINAGE: Peel Main Drain bisects the swamp, circled by ring drain.

### 9.14.2 PHYSIOGRAPHY AND GEOLOGICAL SETTING

Bollard Bullrush Swamp occupies a circular depression at the interface of the Karrakatta and Bassendean landforms below the 6 m AHD surface contour. It is located at the southern end of the Jandakot block of the Bassendean Dunes, near its contact with the Serpentine fluviatile plain.

### 9.14.3 AREAS

| | |
|---|---|
| **Total wetland** | approx 186 ha |
| **Paperbark/flooded gum** | 76.6 ha |
| **Sedgeland** | 11.4 ha |
| **Open water (channels)** | 3.2 ha |
| **Modified (cleared)** | approx 95 ha |

### 9.14.4 HYDROLOGY (Figure 9.24)

There is no water level record available for the swamp. The Peel Main Drain runs through the Swamp from north to south and is excavated to below 4 m AHD. The swamp is circled by a ring drain at about the 6 m AHD contour. The bulk of the swamp lies between the 6 m and 4 m contours, on the south-western flank of the Jandakot unconfined flow system (see Davidson, 1984).

### 9.14.5 WATER QUALITY

No information on water quality is available.

## 9.14.6 LAND USE

The drain which bisects the swamp was constructed in the 1920's in the course of developing the Peel Estate. Land uses are in transition now from grazing, dairying and mixed farming around the summer-wet areas, to large-scale irrigated horticulture. The expanding paperbark woodland on the body of Bollard Bullrush Swamp suggests that agricultural use of the swamp and its margins has been reduced and that the wetland vegetation is in the course of regenerating.

## 9.14.7 VEGETATION (Figure 9.23)

The vegetation of the swamp is a complex of flooded gum and paperbark woodland and sedgeland. The paperbark woodland is a mosaic of different aged stands, no doubt reflecting different lengths of time since grazing pressure has been reduced. A study of the history of land use around the swamp would provide useful insight into the rates of paperbark and flooded gum regeneration.

The Peel Main Drain supports spring blooms of floating Lemna and rooted water weed. The role of these plants in assimilating nutrient loadings in the drain waters may be significant.

## 9.14.8 FAUNA

No information is available. Spoil has been recently dumped on the banks of the drain from maintenance work on the drain (observation: J Arnold Summer, 1986). This spoil contains shells of the native freshwater clam Westralunio and indicates that the drain is developing a freshwater stream fauna.

## 9.14.9 MANAGEMENT ISSUES

Like the Spectacles, Bollard Bullrush Swamp could become rehabilitated to a useful freshwater wetland if land use pressures are maintained at their current level or reduced further.

## 9.14.10 REFERENCE

Davidson, W A (1984), A flow-net analysis of the unconfined groundwater in the superficial formations of the southern Perth area, Western Australia. Geological Survey of Western Australia. Record 1984/9.

NOT PICKED UP

Euc. rudis Low open forest
Melaleuca sp. Low woodland + Low open forest + Low closed forest
Mixed closed sedgeland.

BOLLARD BULLRUSH SWAMP

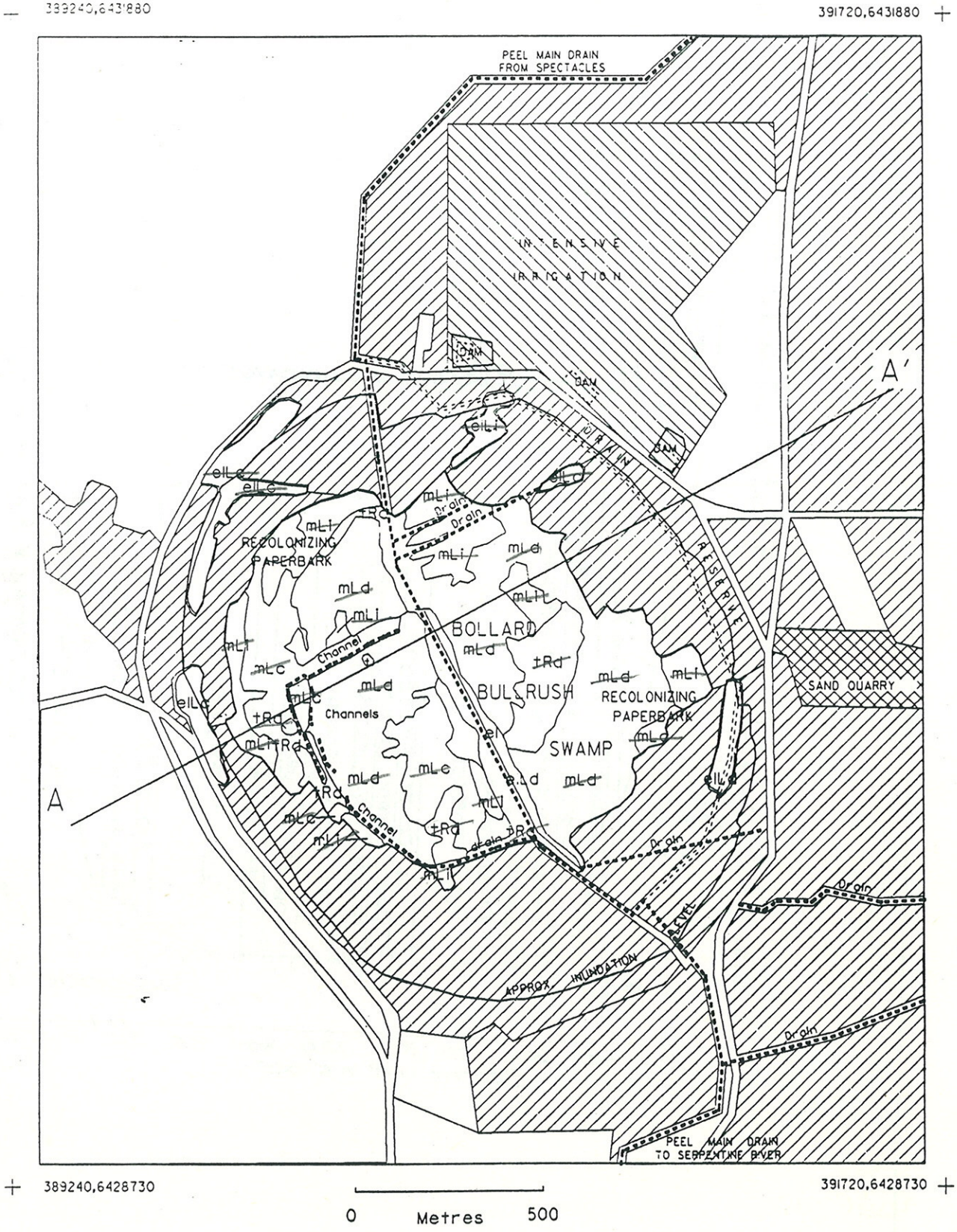


Figure 9.23 Bollard Bullrush Swamp: wetland plant communities and surrounding land use.

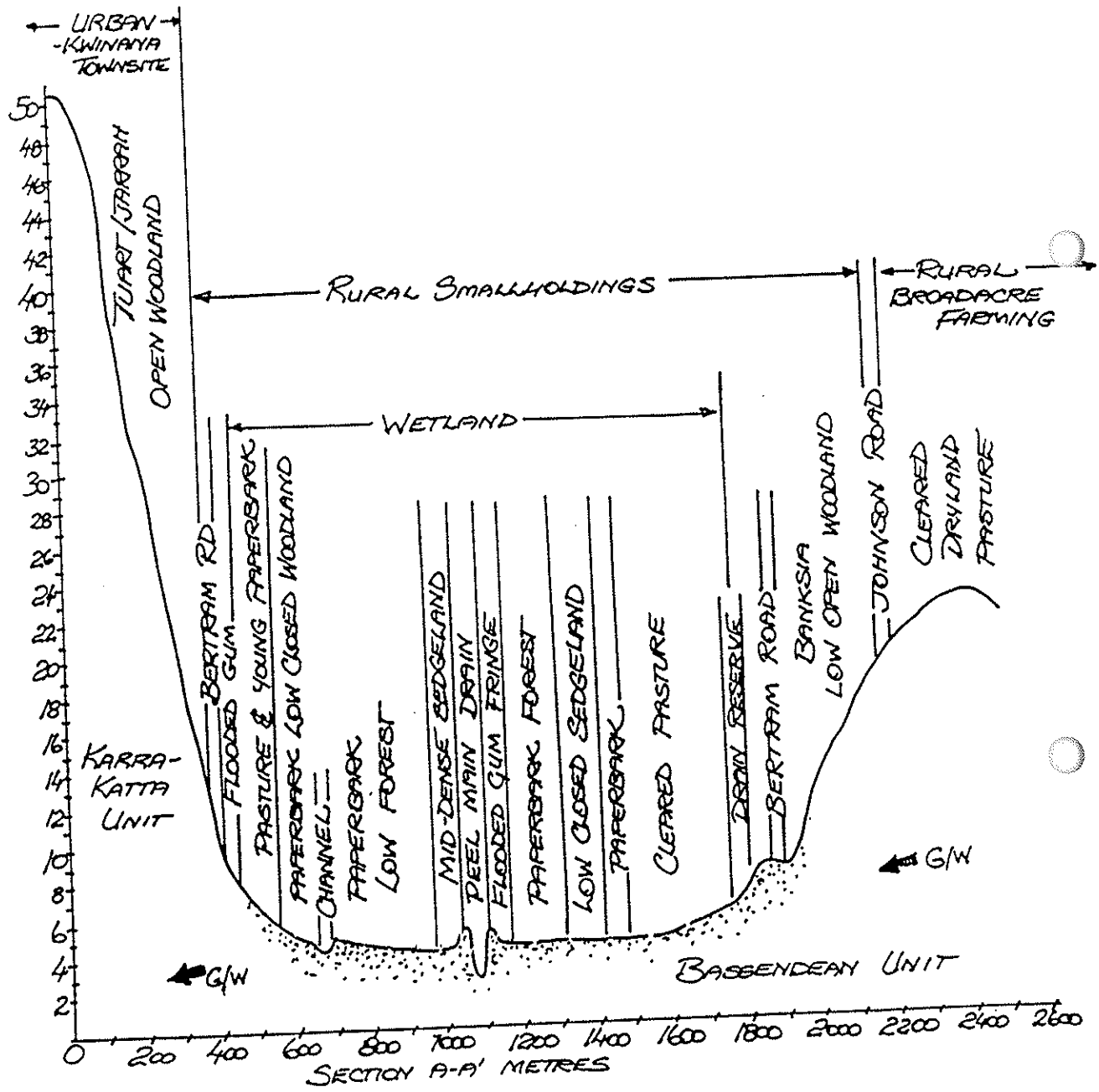


Figure 9.24 Bollard Bullrush Swamp: diagrammatic cross-section.

## 2.5 KEY TO MAPS AND CATEGORISATION OF WETLANDS

Due to the length of the map key it has not been reproduced for every map, but has been summarised on these reference pages. All maps have been reproduced in this Bulletin at one of the following scales: 1:5000, 1:10000, 1:15000, 1:20000, 1:30000 or 1:40000. The map key has been divided into three sections; General legend; Vegetation; and Land use.

GENERAL LEGEND

Wetland Boundary
Metropolitan Region Scheme Boundary
MD Drain - Main (M)
Local (L)
Informal (I)

Fence
Sump
GW Groundwater Flow

VEGETATION MAP: MAPPING NOTATION AND FORMULAE.

Consists of three letters, viz:

(a) dominant genus and species - lower case letter on left;
(b) physiognomy of dominant stratum - upper case letter in centre; and
(c) projective vegetation cover - lower case letter on right.

EXAMPLE: $m_1$Ld = Melaleuca rhaphiophylla; low trees < 10 m tall; dense cover> 70%

(a) Dominant genera and species

| | | | |
|---|---|---|---|
| a | Acacia | k | Halophytes eg samphire |
| $b_2$ | Banksia littoralis | l | Leptocarpus |
| c | Casuarina | m | Melaleuca sp |
| $cl_1$ | Baumea articulata | $m_1$ | Melaleuca rhaphiophylla |
| $cl_2$ | Baumea juncea | $m_2$ | M. preissiana |
| d | Dryandra | $m_3$ | M. lateritia |
| $e_1$ | Eucalyptus rudis | $m_4$ | M. teretifolia |
| $e_2$ | Eucalyptus gomphocephala | $m_5$ | M. cuticularis |
| $e_3$ | E. marginata | p | Callitris |
| $e_4$ | E. calophylla | s | Scirpus |
| $e_5$ | E. todtiana | t | Typha |
| g | Gahnia trifida | w | Weeds or introduced grasses eg Kikuyu |
| h | Coastal heath | | |
| j | Juncus | x | Mixed or other |

(b) Physiognomy of Dominant Stratum

| | | | |
|---|---|---|---|
| T | Tall trees > 30 m tall | V | Rushes and sedges < 1 m tall |
| M | Medium trees 10 - 30 m tall | G | Bunch grasses |
| L | Low trees < 10 m tall | H | Hummock grasses e.g. Spinifex |
| S | Shrubs > 1 m tall | F | Forbs |
| Z | Dwarf shrubs < 1 m tall | L | Lichens and mosses |
| R | Rushes and sedges > 1 m tall | C | Succulents |

(c) Canopy Cover

d Dense Cover > 70% foliage cover
c Mid Dense 30 - 70% foliage cover
i Incomplete Canopy - open, not touching

r Rare but conspicuous foliage cover < 10%
b Vegetation largely absent
p Scattered groups - no definite foliage cover

LAND USE


Uncleared bushland


Partly or fully cleared land; uses can include pasture cropping, pine plantations, easements and no current use, ie unimproved.


Fully cleared and irrigated or used for recreation


Intensive animal production, quarries, landfill, liquid waste disposal sites and industrial areas


Urban areas or sealed areas (eg car parks)

WETLAND CATEGORISATION

The characteristics summarised are as follows:

LE: non-flowing - all of the individual wetlands considered are non-flowing.

f/b/s: Total Dissolved Solids (TDS) f= <1000 mg/L: b = 1000-3000 mg/L; S = > 3000 mg/L.

s/m/l: s = small <25 ha; m = medium 26-50 ha; l = large > 50 ha.

p/s: p = permanent; s = seasonal.

o/so/sc/c: vegetated area(ha)/total wetland area x 100

o = <25%, so = 26-60%, sc = 61-90%, c = >90% L.E.f.l:p.sc

Example: Lake Jandabup (Eastern Wanneroo wetlands) LE.f/l/5.sc