

WETLANDS OF THE DARLING SYSTEM

THE PURPOSES AND VESTINGS OF WETLAND RESERVES

WILDLIFE RESEARCH BRANCH

By Karen Majer

FISHERIES AND WILDLIFE
7 JAN 1981
LIBRARY



BULLETIN No 60
DECEMBER
1979

 DEPARTMENT OF
CONSERVATION
AND ENVIRONMENT

Cover: Lake Joondalup, Shire of Wanneroo, showing fringing vegetation of Jointed Twig Rush, Bulrush and Swamp Paper-bark. Inset on right : White Ibis.

WETLANDS OF THE DARLING SYSTEM:

THE PURPOSES AND VESTINGS OF
WETLAND RESERVES

by Karen Majer

Bulletin No. 60
June, 1979

Department of
Conservation and Environment
Western Australia

TABLE OF CONTENTS

	Page
FOREWORD	1
1. INTRODUCTION	3
2. PURPOSES OF WETLAND RESERVES	3
3. VESTING OF WETLAND RESERVES	5
4. ACKNOWLEDGEMENTS	6
5. REFERENCES	8
FIGURES	
Fig. 1 Area map for the Darling System as defined by the Conservation Through Reserves Committee of the Environmental Protection Authority.	9
TABLES	
Table 1 Purposes of reserves in the Darling System including or adjacent to wetlands (general categories and gazetted purposes.	10
Table 2 Total numbers and areas of reserves, and mean areas of reserves, set aside for certain purposes, including or adjacent to wetlands in the Darling System.	13
Table 3 Reserves recommended for assessment of present use and wetland status	
(i) Reserves for Government Requirements	
(ii) Reserves for outdated purposes	14
Table 4 Vesting of reserves in the Darling System including or adjacent to wetlands.	15

FOREWORD

The importance of conservation of wetlands in Western Australia has been recognized by the Western Australian Environmental Protection Authority (EPA) in putting forward recommendations on conservation reserves (National Parks and Nature Reserves) in Western Australia^{1,2,3}.

In the course of the EPA's consideration of its Conservation Through Reserves Committee's (CTRC) proposals for reserves, and the formulation of recommendations, it became clear that the extent and nature of current allocation of reserves on wetland areas was not known; information on the distribution and types of surviving wetlands was inadequate; the ownership and vesting of wetland reserves were diverse, and in consequence the use of their resources was potentially haphazard; the current status of management of wetland reserves, whilst varying with vesting authorities, localities and other factors, was generally inadequate. Virtually no formal management plans were known to exist and management tended to be of an ad hoc nature.

Recognizing that many of the wetland reserves are vested, and that the responsibility for management lies with the Authority in which they are vested, the EPA believed that it would be desirable to create a consistent pattern of allocation and development of wetland reserve resources. To achieve this there was the need to co-ordinate the approach to the development of management plans for wetland reserves, particularly in terms of overall management to cater for the differing demands made on such reserves.

As a result of these considerations the Wetlands Advisory Committee was convened in February, 1976, by the Department of Conservation and Environment, and was comprised of the following members:

Mrs. K. Majer (Chairperson)	Department of Conservation and Environment
Mr. N. Orr (Secretary)	Department of Conservation and Environment
Dr. N. Marchant	W.A. Herbarium
Dr. T. Riggert	Department of Fisheries and Wildlife
Dr. P.R. Wycherley	Kings Park and Botanic Gardens
Mr. R. Hiller	Town Planning Department
Mr. B. Bailey	Community Recreation Council

The terms of reference of the Wetlands Advisory Committee were to review and advise the EPA on the desirable allocation of wetland reserve resources and the adequacy of their management.

The area selected for the initial one-year study was the region from Moore River to Bunbury, known as the Darling System (System 6) (Fig. 1). This area was chosen firstly because it presently contains about 76% of the State's population and is an area of intensive, and often competing, land-use which places a great deal of pressure on the wetlands. Secondly, it was felt that the information collected in the course of the study would form a useful input to the CTCRC committee, which was then initiating its consideration of the need for further conservation reserves in the Darling System.

The information collected by the Wetlands Advisory Committee between February, 1976 and July, 1977, and the resulting recommendations to the EPA have, however, wider relevance than purely as an input to the Darling System. The purpose of this bulletin is to increase the accessibility of this data, and allow dissemination of relevant information to those who may find it of practical value in future planning for wetlands.

Karen Majer
18 Silverdale Road
Lesmurdie
WESTERN AUSTRALIA 6076

1. INTRODUCTION

Section 29(1) of the Western Australian Land Act (1933) empowers the Governor to reserve land for a variety of purposes. Under section 30 of this Act, "A description of every such reserve and of the purposes for which it is made, shall be published in the Gazette, and all reserves shall be set forth on authenticated maps of" ... the Western Australian Department of Lands and Surveys.

The purposes for which reserves may be set aside are defined under S.29(1) and include "the use and benefit of the aboriginal inhabitants", railways, roads, drainage or irrigation works, churches and school sites, State Forests, flora and fauna conservation, reservoirs, drains, townsites, mines, and recreation.

Section 33 of the Act provides that such reserves may be vested, leased, or granted in fee simple, subject to conditions, "... to ensure that the land is used for the purpose ...".

Many of these reserves contain, or are adjacent to, all or part of a wetland resource. Hence, whether or not the reserve is set aside for conservation purposes, consideration of the use and management of these areas is an integral part of any approach to conservation and management of wetlands.

This booklet sets out the purposes for which reserves incorporating wetland resources are currently set aside in the Darling System, (Fig. 1) and the vesting authorities who are responsible for their management.⁴

2. PURPOSES OF WETLAND RESERVES

Reserves for any purpose including, or adjacent to, all or part of a wetland are referred to here as wetland reserves.

The purposes for which reserves incorporating wetland resources are currently set aside in the Darling System are listed in Table 1.

It can be seen from Table 1 that many of the gazetted purposes are actually synonymous terms for the same use, and hence for ease of reference the purposes have been grouped under the following headings:

Drainage and Water Supply
 Conservation
 Recreation
 National Parks
 Government Requirements (or Public Utility)
 Community or public use, and special purposes
 (other than recreation)
 Forestry (but not including State Forests)
 Mining

Table 2 shows the proportion of wetland reserves, in terms of area and total numbers in the Perth Metropolitan Region and in the Darling System outside the Metropolitan Region, set aside for these purposes.

Many of the purposes of the reserves are related to the presence of a wetland area, for example drainage, water supply, conservation, and in many cases recreation. Other purposes are incidental to (or even despite) the wetland, for example a small stream running through a reserve for a church, cemetery or hallsite. The latter can hardly be considered wetland reserves, although they have been listed as such due to the presence of the wetland. In fact, some of these reserves may play a part in conserving wetlands, for example a swamp within a timber reserve may remain untouched and be protected from the land-use pressures existing in the surrounding area.

In other cases, reserves have been set aside on wetlands for purposes which may now be considered historic and outdated, in that it is unlikely that the reserve is now required, or utilized, for the gazetted purpose. Examples are Stock Route, Resting Place for Travellers and Stock, Timber for Settlers, Watering and Stopping Place for Teams, and so on. It is likely that some of these reserves, while no longer fulfilling their original purpose, contain wetland areas of value for flora and fauna, or with recreational potential.

It would therefore be of value to examine wetland reserves for Government Requirements and for outdated purposes to assess their present use and wetland status, with a view to possible changes in purpose and subsequent vesting in a suitable management authority.

Specific examples of reserves which may merit such assessment are listed in Table 3.

In view of the current paucity of reserves set aside to conserve areas of permanent, fresh water, priority should be given to the evaluation of such areas within reserves for outdated gazetted purposes.⁴

It is also noted that many of the purposes for which reserves are gazetted are extremely specific, and that a reserve may fulfil many other uses as well as its stated purpose. For instance, a timber reserve may, with suitable management, also fulfil the role of a wetland conservation area and a passive recreational amenity. There is a need for appropriate management to facilitate such multi-purpose use of wetland reserve resources.⁵

3. VESTING OF WETLAND RESERVES

Wetland reserves may be vested for management in vesting authorities. An alphabetical list of vesting authorities appears below and in more detail in Table 4.

Aboriginal Land Trust
 Bunbury Port Authority
 Chief Secretary
 (Crown Grant)
 Commissioner for Railways
 Conservator of Forests
 Local Authorities (Towns, Shires, etc.)
 Minister for Fisheries
 Minister for Public Health
 Minister for Railways
 Minister for Works
 Minister for Water Supply, Sewerage and Drainage
 Metropolitan Water Supply, Sewerage and Drainage
 Board
 National Parks Authority
 Public Works Department
 Western Australian Wildlife Authority

Many wetland reserves are not vested in a specific authority. In such cases they are usually under the jurisdiction of the Minister for Lands.

The necessity for suitable management in conjunction with reservation of a wetland is stressed. This is particularly so in cases where the wetland is a major feature of the reserve, such as a recreational reserve on a lake foreshore. Only with appropriate management of the wetland will the reserve be able to continue to fulfil its purpose. It is therefore recommended that those reserves which are currently not vested be investigated with a view to vesting in an authority with suitable management expertise. For instance, reserve 24257 (Lakes Bambun, Nambun and Mungala) for Conservation of Fauna, would be appropriately vested in the Western Australian Wildlife Authority.

Management of reserves with wetland resources is dealt with in another bulletin.⁵

4. ACKNOWLEDGEMENTS

This bulletin is the result of the efforts of all the members of the Wetlands Advisory Committee (1976).

Acknowledgements and thanks are extended to the following persons for their help during the deliberations of the Wetlands Advisory Committee in 1976-1977.

Mr. P. Armstrong,	Harbour and Light Department.
Mr. W.J. Burdass,	Department of Agriculture (Katanning).
Mr. M. Caldwell,	Metropolitan Water Supply, Sewerage and Drainage Board.
Mr. A.W. Chiffings,	Department of Conservation and Environment.
Mr. R. Deering,	(Private submission).
Mr. G. Delaney,	Crown Law Department.
Dr. R. Field,	Department of Conservation and Environment.
Mr. J. Goodsell,	Department of Fisheries and Wildlife.
Mr. P. Holmes,	Department of Conservation and Environment.
Mr. J. Iveson,	Public Health Department.
Mr. G. Kendrick,	W.A. Museum.

Mr. W.A. Loneragan,	University of Western Australia (Botany Department).
Mr. J.W. Malcolm,	Department of Agriculture.
Mr. B. Muir,	W.A. Museum.
Mr. K. Newby,	(Private submission).
Prof. D.C. O'Connor	Murdoch University (School of Environmental and Life Sciences).
Mr. N. Platell,	Government Chemical Laboratories.
Mr. B. Sadler,	Public Works Department.
Mr. C. Sanders,	Department of Conservation and Environment.
Mr. J. Sharpe,	Community Recreation Council.
Mr. G.G. Smith,	University of Western Australia (Botany Department).
Mr. & Mrs. A. Tingay,	Consultants.
Mr. M. Tooby,	Australian Institute of Landscape Architects.
Dr. P. Weaver,	Environment 2000.
Dr. B. Wilson,	W.A. Museum.

Officers of the Department of Conservation and Environment who helped with map searches for the reserve inventory.

Special thanks are extended to the Department of Lands and Surveys, and in particular to Mr. S. Chapman (Roads and Reserves), for his co-operation in compiling the reserve inventory.

The author wishes to thank Dr. J.M. Arnold (Department of Conservation and Environment) for her particular help and encouragement in the production of this bulletin.

5. REFERENCES

Environmental Protection Authority (Western Australia) (1975). Conservation Reserves for Western Australia. Systems 4, 8, 9, 10, 11, 12.

Environmental Protection Authority (Western Australia) (1976). Conservation Reserves for Western Australia. Systems 1, 2, 3, 5.

Environmental Protection Authority (Western Australia) (in prep.). Conservation Reserves for Western Australia. System 6.

Wetlands Advisory Committee (1977). The Status of Wetland Reserves in System 6. Report of the Wetlands Advisory Committee to the Environmental Protection Authority (Western Australia).

Majer, K. (1979). Wetlands of the Darling System: Wetland Reserves and their Management. Department of Conservation and Environment, Western Australia. Bulletin No. 62.

FIGURE 1: Area map of the Darling System as defined by the Conservation Through Reserves Committee of the Environmental Protection Authority.

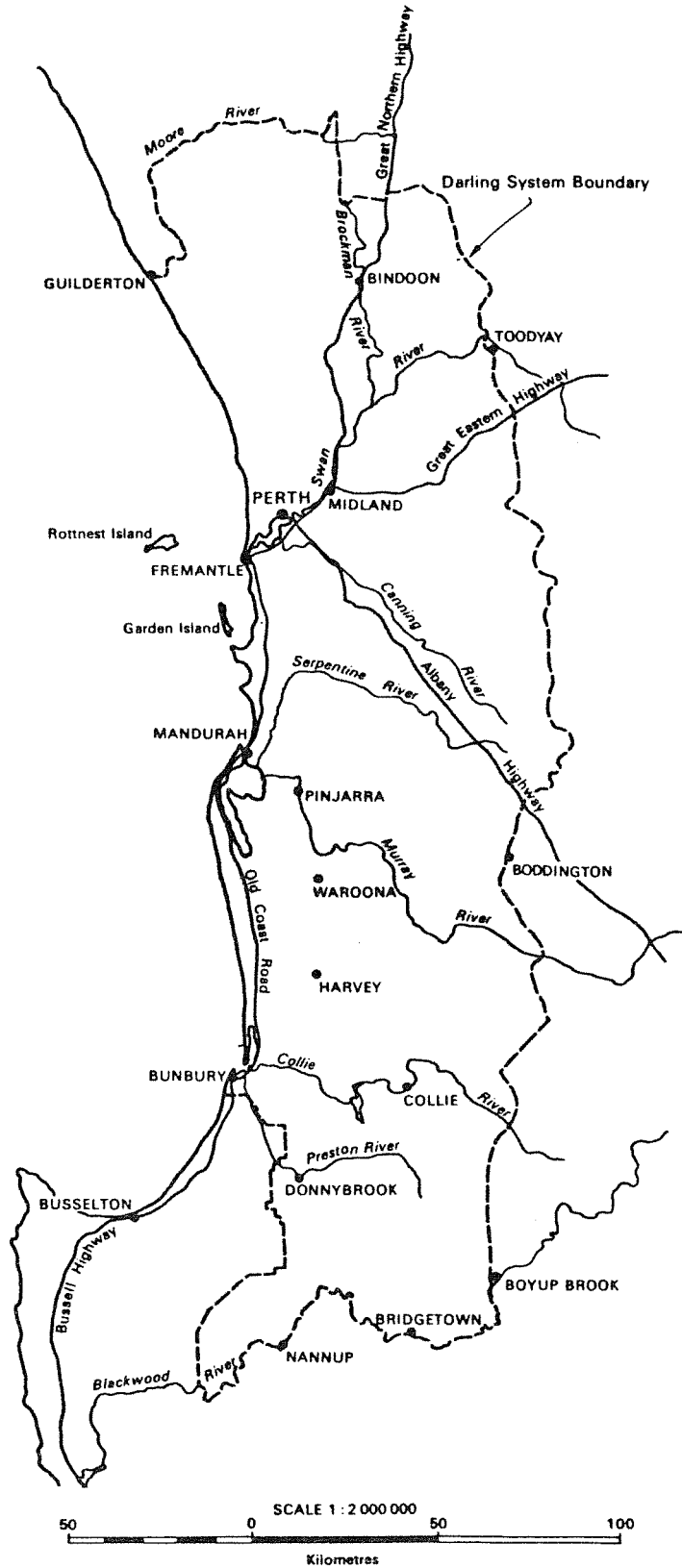


TABLE 1: Purposes of Reserves in the Darling System
including or adjacent to wetlands
(general categories and gazetted purposes)

Drainage and Water Supply Reserves

Water	Drain
Water supply	Drainage
Water supply purposes	Drainage purposes
Watering place	Recreation and drainage
Railway water supply	Drainage, river training
Railway water	Drainage and irrigation
Stopping and watering place for teams	Irrigation purposes
Well and stopping place for travellers	Irrigation and drainage purposes
Watering and stopping place	Irrigation channel
Water and stopping place	<u>Conservation Reserves</u>
Water and access	Preservation of flora
Water and government requirements	Conservation of flora
Government requirements and water	Camping and conservation of flora
Quarry and water	Conservation of fauna
Water and camping	Sanctuary for fauna
Watering place for travellers and stock	Flora and fauna sanctuary
Watering place for stock	Flora and fauna
Stopping and watering place for travellers and stock	Flora and fauna and recreation
Timber, water and camping	Conservation of flora and fauna
Water and conservation of flora and aquatic life	Preservation of beauty spot
Access to water	Water and conservation of flora and aquatic life
Catchment area	National park and native game
Reservoir site	Preservation of indigenous timber
Reservoirs, aqueducts, water courses and catchment areas	Government requirements and conservation of flora and fauna
Drainage sump	Protection and preservation of caves and for flora and for health and pleasure resort

(continued over)

TABLE 1 Purposes of Reserves in the Darling System (continued)

<u>Conservation Reserves (Cont'd)</u>	<u>Recreation Reserves (Cont'd.)</u>
River foreshore	Camping
Fauna conservation, research and drainage	Camping and conservation of flora
Bird sanctuary and park	Camping place
Recreation and bird sanctuary	Camping and picnic ground
Recreation and conservation of fauna	Water and camping
	Caravan park
	Caravan park, camping
	Parking and picnic
	Beach resort, recreation and aquatic sports
	Public recreation
	Racecourse and recreation
	Timber, water and camping
	Timber and parklands
	Protection and preservation of caves and flora and for health and pleasure resort
	Landing stage
	Landing place
	Rowing club premises
	Use and requirements of rowing club
	River improvements and camping
	Public park and recreation
	Recreation and bird sanctuary
	Yacht club premises
	Use and requirements of yacht club
	Bird sanctuary and park
	<u>National Parks</u>
	National park
	Recreation and national park
	National park and native game
	Protection and preservation of caves and flora and for health and pleasure resort
	Park, parkland
<u>Recreation Reserves</u>	
Recreation	
Recreation and hallsite	
Recreation and swimming pool	
Recreation and bathing	
Recreation and National Park	
Recreation ground	
Recreation and show ground	
Recreation and parklands	
Recreation and parking (Parking and recreation)	
Recreation and park	
Recreation, launching ramp, and parking	
Recreation, camping and caravans	
Recreation and purposes incidental	
Recreation and conservation	
Recreation and camping	
Recreation and river improvements	
Recreation and riverside improvements	
Park	
Park, picnic ground	
Park and recreation	
Parklands	
Parklands and recreation	
Picnic ground	

(continued over)

TABLE 1 Purposes of Reserves in the Darling System (continued)

Reserves for Government
Requirements

Government requirements
 Government requirements and
 water
 Industrial purposes -
 Government requirements
 Water and Government
 requirements

Reserves for Public, Community,
or Special Purposes
(other than Recreation)

Repertory club
 Sanitary depot
 Pound
 Bridge approach
 Road approach - ford
 Cemetery
 Rifle range
 Municipal purposes
 Church
 Agriculture hall
 Hallsite
 Schoolsite
 Port purposes
 Boat shed - Fisheries
 Department
 Railway purposes
 Railway
 Public requirements
 Show ground
 Shire office
 Travellers and stock
 Stopping place
 Resting place for travellers
 and stock
 Stock route

Reserves for Public, Community,
or Special Purposes
(other than Recreation)
(Cont'd)

Access to lake
 Use and benefit of aborigines
 Common
 Agricultural research station
 Harvey Agricultural High School
 Prison site
 Memorial park
 Mental health purposes
 Historic building
 Administration and Civic Centre
 Health Services Centre
 Baths site

Forestry Reserves
(Not including State Forest)

Timber
 Timber and parklands
 Re-afforestation
 Forestry purposes
 Timber for settlers
 Timber, water and camping

Mining Reserves

Quarry
 Quarries
 Gravel
 Sand and Gravel
 Mining
 Mining Purposes
 Quarry and Water

TABLE 2 Total numbers and areas of reserves, and mean area of reserves, set aside for certain purposes¹ including, or adjacent to wetlands in the Darling System

PERTH METROPOLITAN REGION

SYSTEM 6 OUTSIDE PERTH
METROPOLITAN REGION

PURPOSE OF RESERVE (1)	Number of Wetland Reserves	Total area of Wetland Reserves	Mean Reserve Area (2)	Number of Wetland Reserves	Total area of Wetland Reserves	Mean Reserve Area (2)
Conservation	15	4388.33ha	292.56ha (±497.68) (Range 4ha to 1991ha)	30	5142.71ha	171.42ha (±250.56) (Range 2ha to 1019ha)
Recreation	118	3943.29ha	33.42ha (±80.96) (Range 40m ² to 401ha)	155	2944.43ha	18.99ha (±44.34) (Range 261m ² to 326ha)
National Parks	13	10757.38ha	827.49ha (±1342.38) (Range 5 to 4430ha)	7	28849.53ha	4121.36ha (±6716.77ha) (Range 79 to 17543ha)
Drainage and Water Supply	(3)	(3)	(3)	236	4567.89ha	19.36ha (±89.51) (Range 12m ² to 1189ha)
Government Requirements	6	52.13ha	8.69ha (±6.67) (Range 8094m ² to 20ha)	21	675.40ha	32.16ha (±40.37) (Range 228m ² to 129ha)
Forestry	5	5461.97ha	1092.39ha (±2262.88) (Range 12ha to 5144ha)	13	1756.86ha	135.14ha (±176.54) (Range 3 to 619 ha)
Mining	2	33.01ha	16.50ha (±5.74) (Range 12ha to 21ha)	9	118.32ha	13.15ha (±9.76) (Range 1 to 27 ha)
Community, Public or Special Use	15	1883.59ha	125.57ha (±265.42) (Range 1568m ² to 982 ha)	42	7685.91ha	183.02ha (±789.59) (Range 261m ² to 5069ha)

1. For gazetted purposes grouped under these headings see Table 1.
2. Number in brackets is standard deviation. Range is given to nearest hectare.
3. Listing not complete.

TABLE 3 Reserves Recommended for Assessment of Present use and Wetland Status

(i) Reserves for Government Requirements (Public Utility)	(ii) Reserves for outdated purposes
--	-------------------------------------

Perth Metropolitan Region

'B' 7773 Canning River foreshore, Canning. 20265 Canning River foreshore, Canning. 17343 Tributary of Helena River, Kalamunda. 27008 Unnamed swamps, Rockingham. 21868 Herdsman Lake, Stirling. 22981 Brockman River, Swan Shire.	335 Unnamed creek, Serpentine-Jarrahdale. (Watering and stopping place for teams). 904 Unnamed creek, Serpentine-Jarrahdale. (Stopping place). 1654 Unnamed creek, Swan. (Travellers and stock).
--	---

Darling System Outside Perth Metropolitan Region

9510 Spring and creek, Bridgetown-Greenbushes. 13532 Gerrard Island, Leschenault Inlet, Bunbury. 23561 Collie River foreshore, Collie. 6770 Collie River, Collie. 19171 Unnamed creek, Collie. 22804 Unnamed creek, Collie. 31338 Unnamed creeks, Donnybrook-Balingup. 25431 Unnamed swamp, Gingin (adjoins Lake Muckenburra). 33784 Unnamed swamp, Gingin. 257 Gingin Brook and Moore River, Gingin. 3534 Moore River, Gingin. 22958 Tributaries of Harvey River, Harvey. 7322 Nalyerin Lake and swamps, Harvey. 2517 Wellesley River flats, Harvey. 5618 Murray River, Murray. 5622 Murray River, Murray. 12340 Unnamed Creek, Nannup. 5610 Avon River, Toodyay. 6170 Avon River, Toodyay. 7341 Avon River, Toodyay. 20210 Unnamed creek, Toodyay. 13718 Dinjim Pools, Harvey River, Waroona.	'A' 680 8 Mile Spring, Bridgetown-Greenbushes. (Stopping and watering place for teams). 1929 Dumpling Gully, Bridgetown-Greenbushes. (Well and stopping place for travellers). 7703 Capel River, Donnybrook-Balingup. (Watering place for travellers and stock). 21164 Moore River, Gingin (Stock route). 14564 Tributaries of Harvey River, Harvey. (Timber for settlers). 17805 Unnamed creek, Harvey. (Timber for settlers). 6627 Lake Mealup, Murray. (Watering place for stock). 615 Unnamed creek, Nannup. (Resting place for travellers and stock). 12540 Clackline Brook, Northam. (Railway discontinued). 334 Unnamed creek, Wandering, (Watering and stopping place for teams). 22199 Unnamed swamp, Waroona. (Timber for settlers). 'A' 4555 Bingham River, Williams. (Resting place for travellers and stock). 7675 Bingham River, Williams. (Resting place for travellers and stock). 424 Spring and creek, York. (Stopping and watering place for travellers and stock).
--	--

TABLE 4 Vesting of Reserves in The Darling System
Including or Adjacent to Wetlands

Purpose ¹	Vestings
Drainage and Water Supply	Not Vested Shire Minister for Water Supply, Sewerage and Drainage Minister for Works Local Authority Metropolitan Water Supply, Sewerage and Drainage Board Public Works Department Conservator of Forests
Conservation	Not vested Local Authority Western Australian Wildlife Authority National Parks Authority
Recreation	Not vested Local Authority Crown Grant Conservator of Forests National Parks Authority
National Park	Not vested National Parks Authority
Government Requirements	Not vested Local Authority
Public, Community or Special Purposes (Other than Recreation)	Not vested Crown Grant Local Authority Minister for Works Bunbury Port Authority Minister for Fisheries Minister for Railways Commissioner for Railways Aboriginal Land Trust Chief Secretary Minister for Public Health
Forestry	Not vested Conservator of Forests
Mining	Not vested Local Authority Minister for Works

1. For purposes grouped under these headings see Table 1

WETLANDS OF THE DARLING SYSTEM

Wetlands are areas of seasonally, intermittently or permanently waterlogged soils or inundated land, whether natural or otherwise, fresh or saline e.g. waterlogged soils, ponds, billabongs, lakes, swamps, tidal flats, estuaries, rivers and their tributaries.

Bulletins in this series:

Wetlands in Recreation Reserves (Bulletin No. 59)

The Purposes and Vestings of Wetland Reserves
(Bulletin No. 60)

Wetlands in Conservation Reserves and
National Parks (Bulletin No. 61)

Wetland Reserves and their Management
(Bulletin No. 62)