WETLANDS AND WATERBIRDS PROGRAM

PROGRAM LEADER

J. Lane

CURRENT RESOURCES

This program comprises 3.2 persons (1.4 Professional + 1.8 Technical). Its budget is $ ($ salaries, $0 wages,$ other).

RESOURCES IN PREVIOUS YEAR

3.55 persons (1.7 Professional + 1.85 Technical); budget of $ ($ salaries, $0 wages, $ other).

BACKGROUND

For historical reasons the Program was, until 1986, concerned primarily with the collection of data needed:

i) to identify the conservation value (principally as waterbird habitat) of specific wetlands and thereby to assist in the struggle to protect these habitats from degradation and inappropriate forms of development or use, and

ii) to facilitate responsible management of annual duck hunting seasons.

A number of small studies directed towards the resolution of specific management issues were also conducted. Program members were also much involved in wetland reservation, management, management planning, policy issues and resolution of conflicts.

With the formation of CALM and the structural separation of research, management, management planning and policy functions into different Divisions, the Program has attempted to increase its emphasis on research and to be less involved in other functions which are properly the responsibility of other branches.

AIM:

To provide scientific information to ensure effective conservation and management of Western Australia's wetland ecosystems, including the maintenance of waterbird populations.

PRIMARY OBJECTIVES

Wetland Values

To identify conservation values of the wetlands and wetland systems of Western Australia, particularly with respect to reservation of a representative sample of wetland types, maintenance of species (flora and fauna) diversity and provision of habitat necessary for the maintenance of the State's waterbird populations.

Status of Waterbird Populations

To monitor and manage the State's 130 species of waterbirds, particularly those species of ducks which are harvested.

Wetland Ecosystem Dynamics

To develop an increased understanding of the functioning of wetland ecosystems, identify major degrading influences and provide management solutions.

Public Involvement

To foster a sympathetic public attitude to the conservation of waterbird populations and wetlands through direct involvement of the public in appropriate research projects and through open communication of research findings.

Communication

To communicate research results in the form of technical and scientific publications, educational literature, committee representation, and to provide advice and liaison with other CALM staff, other Departments, and the community at large by way of training courses and seminars.

20 YEAR GOALS (based on current resources and in priority order)

1. Establish an inventory of wetlands of the State and a reservation system that represents all types of wetlands, with emphasis on improved representation in areas outside the south west and along streams, rivers and tidal zones.***

2. Study factors affecting population dynamics, distribution and occurrence of waterbirds, especially game species of duck and migratory waders.**

3. Determine conservation status of wetland and stream invertebrates and native fish and examine factors affecting their occurrence.**

4. Examine the effects of environmental changes on the biota of wetlands and ways of ameliorating the effects of changes including salinization, Greenhouse effect and entrophication.**

5. Document habitat quality of wetlands, including rivers and streams, with emphasis on riparian vegetation and water quality.*

6. Study issues related to pest management, artificial creation of wetlands and other management matters to ensure that the actions undertaken are biologically sound.*

5 YEAR GOALS

1. Establish and maintain a volunteer-based program (500+ observers) for annual assessment of the abundance of waterfowl (particularly game species of ducks) and for identification of important waterbird sites in southwestern Australia.

2. Determine the conservation value (principally the level of usage by waterbirds) of remote wetlands (Lakes Gregory, Argyle, McLeod etc.) of probable international importance.

3. Assess seasonal usage by waterbirds of a number of important, poorly known, wetland sites in south-western Australia.

4. Annually monitor water levels and water quality of a sample of south-west wetlands as a basis for determination of duck shooting seasons and as part of CALM's broader program of monitoring of the condition of conservation lands.

5. Analyse results of 1981-1985 RAOU Waterbird Survey project as first step in identifying the general environmental parameters within a wetland that affect its usage by waterbirds.

6. Assess the conservation status of the lentic invertebrate fauna in the south-west through wetland surveys and examine how various environmental parameters (eg. salinity, nutrients) affect the distribution of species.

7. Analyse and publish results of the Fisheries and Wildlife Department duck banding project (funded by ANPWS States Assistance Grant; $24 000).

8. Assess the conservation values of different habitats in Leschenault Inlet and the effect of mosquito control on those values for waterbirds and invertebrates.

9. Study the effect of salinity on usage of wetlands by ducks for both breeding and as drought-refuges as an indication of the impact of increased salinization in the south-west on waterbirds.

10. Examine food selection in waterbirds in relation to the invertebrate prey available to gain some understanding of how changes in invertebrate species composition that result from salinization affect waterbird distribution.

11. Determine the breeding status (number of breeding colonies, locations and size) of the Great Egret *Egretta alba* in Western Australia.

12. In collaboration with other State and Local Government authorities, develop more effective and environmentally acceptable methods of midge (chironomid) nuisance control.

13. Examine pesticide levels in Herdsman Lake and animals therein in relation to both spraying for

Argentine ants and other uses of insecticide within the catchment.

14. Gain a preliminary indication of the level of threat to native avifauna and wetland ecosystems posed by continued use of lead shot for waterfowl hunting in the south-west of W.A.

PROJECTS TO BE COMPLETED FROM JULY 1988 TO JUNE 1993
(numbers refer to the Table following)

1-4,8,9,11-16,18

PROPOSED NEW PROJECTS - with existing resources (in priority order)

1. Annual assessment of waterfowl abundance. Joint CALM/RAOU-volunteers project with counts each November and March. This is an expansion of the Great Duck Count.

PROPOSED NEW PROJECTS - with additional resources (in priority order)

1. Waterbird usage of wetlands of Swan Coastal Plain. Joint CALM/WAWA project using RAOU volunteers to assess the significance of different types of wetland for waterbirds to assist in planning the exploitation of Perth's groundwater resources.

2. State of the Wetlands. Develop procedures for periodic assessment of the rate of loss (or gain) of wetland types. This information would be used to counteract the current piecemeal loss of wetland resources and to enable policy development, protective legislation, acquisition, management etc. to be targetted on areas of greatest need.

PUBLICATIONS AND REPORTS 1987/88

Halse, S. (1987). Probable effect of salinity on the waterbirds of Lake Toolibin. Technical Report No. 15. Western Australian Department of Conservation and Land Management, Perth. 31 pp.

Halse, S.A. (1988). The last lake. Landscope 3, 17-22.

Halse, S.A. & Halse, N.J. (1988). Seabirds and shorebirds at Ningaloo in winter, with comments on Hutton's Shearwater. Western Australian Naturalist 17, 97-106.

Halse, S.A. & Rose, R.W. (1988). Thermoregulation in the Tasmanian Brush-tailed Possum. Mammalia 52 (in press).

Halse S.A. & Ward, D. (1987). Assessing conservation value of wetlands. Abstracts of 26th Congress, Australian Society for Limonology. Australian Society for Limnology Newsletter 25,36.

Bartle, J., Graham, G., Lane, J.A.K. and Moore, S.A. (1987). Forrestdale Lake nature reserve management plan. Dept. Cons. Land Mgmt West. Aust. Mgmt Plan No 3, 122 pp.

Watkins, D.W., Clarke, J., Lane, J.A.K. and Moore, S.A. (1987). Benger Swamp nature reserve mgmt plan. Dept. Cons. Land. Mgmt West. Aust. Mgmt Plan No 7, 92 pp.

Primary Objectives	5 Year Goals	Projects (RPP No.)	Tasks completed 1987-8	Targets 1988-9
Wetland values	Remote wetlands	1. Kimberley surveys	Fitzroy River, lower Ord R. and Lake Argyle surveys	No further research planned
	Seasonal usage	2. South west surveys	Wonnerup, Vasse monitored	New project
		3. Waterbird use of Wetland Nature Reserves	Final draft prepared	Publish of Report
		4. Waterbird use of wetlands of Swan Coastal Plain	Project outline prepared (joint project with WAWA)	New project: Obtain funding commitment
	Invertebrate conservation status	5. Ostracod taxonomy	Descriptions of 1 new genus, 3 new spp prepared for publication	Describe new spp as found
		6. South-west surveys	34 wetlands sampled, 1 two-monthly, some analysis	Limited no. of surveys, continue analysis
Status of waterbird populations	Annual abundance	7. March counts	March '88 count conducted	New project
	Duck banding	8. Analysis of historical data	Analysis completed	Prepare for publication.
	Egret colonies	9. Location, size and numbers	Colonies monitored	Prepare for publication.
Wetland ecosystem dynamics	Wetland monitoring	10. Sept & Nov surveys	Sept & Nov 1987 surveys undertaken	Sept & Nov 1988 surveys

Primary Objectives	5 Year Goals	Projects (RPP No.)	Tasks completed 1987-8	Targets 1988-9
	Environmental parameters	11. RAOU waterbird survey analysis	Vegetation data collected	Finish analysis and prepare for publication.
	Impact of Mosquito Control	12. Leschenault Inlet	Invertebrate analysis completed, most bird fieldwork finished	Finish fieldwork, analyse & prepare for publication.
	Ducks and salinity	13. Breeding success in SW	None	Fieldwork at 2 sites
	Food selection	14. Diet in fresh water	30 birds collected & invertebrates sampled	Continue fieldwork
	Midge nuisance control	15. Midge Research Steering Committee	Funding obtained, short term control options evaluated	Evaluate long term control options
	Herdsman pesticides	16. Organochlorines in swamphens	Fieldwork & analysis completed	Prepare for publication.
	Wetland Vegetation	17. Longterm monitoring	Fieldwork, mapping & vegn structure completed	Finish identifs, prepare for publication
	Lead shot	18. Gizzard contents analysis	Analysis	Prepare for publication.