WESTERN AUSTRALIAN WILDLIFE RESEARCH CENTRE

RESEARCH PROGRAMME SEMINAR

3 APRIL 1979

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RESEARCH PROJECTS

1. Annual Pre-Shooting-Season Waterfowl Surveys

1.1. Objectives

i) To determine the success and timing of waterfowl breeding activity in the south-west of the State.

ii) To determine the post-breeding abundance and distribution of waterfowl in the south-west of the State.

iii) To determine the condition (area and depth of water) of wetlands in the south-west at the completion of the breeding season.

1.2. Procedures

Ground surveys to provide a subjective assessment of the success and timing of breeding activity were conducted from June to November 1978.

Aerial surveys to determine the condition of wetlands and the size and distribution of waterfowl populations were conducted during October and November 1978.

1.3. Results

i) Wetland Condition: Overall, the condition of wetlands during the 1978 waterfowl breeding-season was much improved on 1977 (see Table 1, and Figure 1). Rainfall distribution was patchy however, and some areas (particularly in the North Central and South Central Meteorological Districts) made little improvement on the previous year.

ii) Breeding: Observations by Research Branch staff, and reports from other sources, indicated that per capita production was high. Breeding commenced very early with ducklings appearing in late June. Breeding continued strongly until December and flightless juveniles were observed as late as February.

iii) Waterfowl Abundance and Distribution: Aerial surveys conducted during the period 24th - 27th October revealed very few large concentrations of waterfowl. Although sightings of several thousand Mountain Duck were common their numbers were far below those recorded 12 months previously. Grey Teal and Black Duck numbers were also comparatively less (see Table 2).

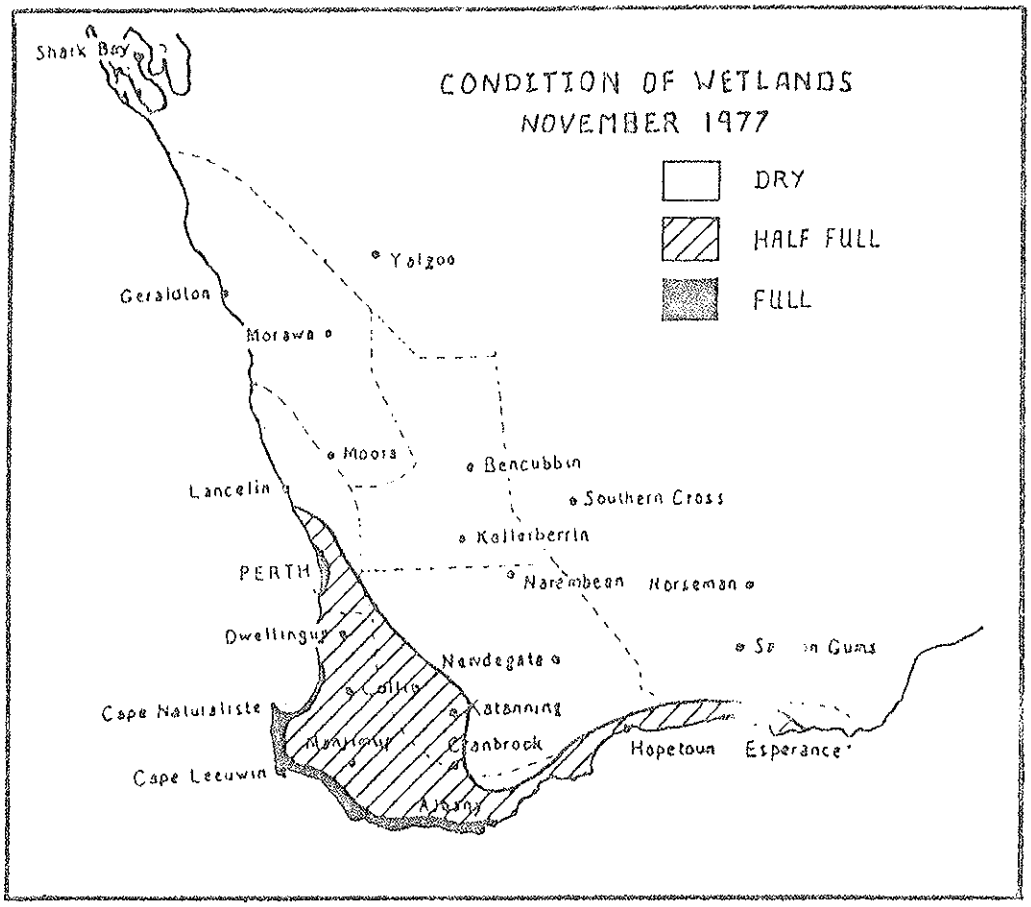
TABLE 1.

STATUS OF SOME IMPORTANT WETLANDS AS AT NOVEMBER 1976, 1977 & 1978.

LAKE NAME	WATER LEVEL		
	1976	1977	1978
EGANU	Low	Dry	Full
PINGARREGA	Low	Dry	½ Full
MOORA	Low	Dry	½ Full
WANNAMAL	½ Full	Low	Full
WALYORMORING	½ Full	Dry	Low
BEVERLEY	High	Low	Full
MEARS	Low	Dry	High
YEALERING	Full	Low	High
TOOLIBIN	Full	Dry	Dry
TAARBLIN	Low	Dry	Low
NOMAN	Low	Dry	Low
GUNDARING	High	Low	Low
DUMBLEYUNG	Low	Low	Low
COOMELBERRUP	Full	½ Full	High
COYRECUP	Low	Dry	½ Full
EWLYAMARTUP	Full	High	½ Full
CASUARINA	½ Full	Low	Low
WARDERING	High	½ Full	High
RUSHY SWAMP	Full	Dry	Dry
NORRING	Full	Low	Low
FITZES SWAMP	High	Dry	Low
TOWERINNING	½ Full	½ Full	½ Full
BENGER SWAMP	High	High	Full

SUMMARY:

	DRY	LOW	½FULL	HIGH	FULL
1976	0	8	4	5	6
1977	11	7	3	2	0
1978	2	8	5	4	4



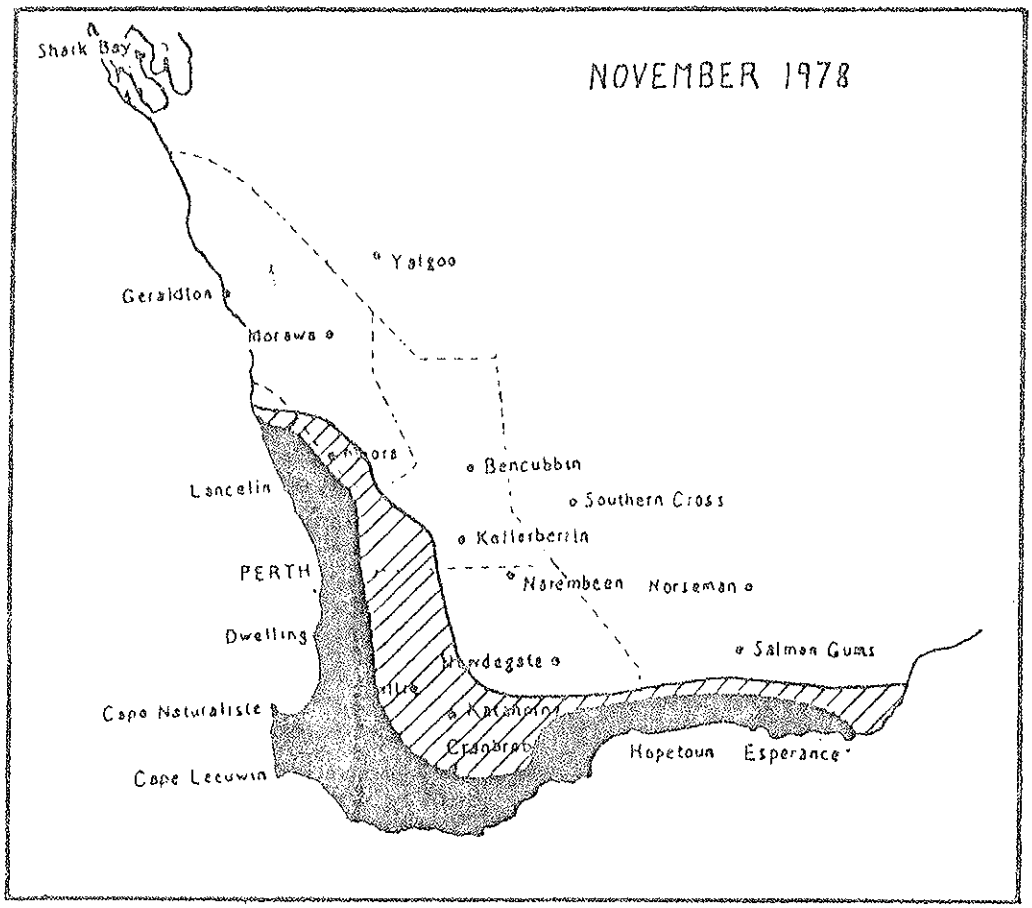


FIGURE 1 Condition of Wetlands : November 1977 and 1978.

TABLE 2.

Numbers of Mountain Duck, Grey Teal and Black Duck observed during air surveys of 108 wetlands and "wetland clusters" in 1977 (7th-11th November) and 1978 (24th-27th October).

	NUMBERS OBSERVED		
	1977	1978	Variation
Mountain Duck	100,000	45,000	- 55%
Grey Teal	45,000	7,000	- 87%
Black Duck	3,000	800	- 73%

TABLE 3.

Numbers of Mountain Duck, Grey Teal and Black Duck observed during air surveys of a sub-sample of 35 wetlands in November 1977, and October and November 1978.

	NUMBERS OBSERVED		
	1977	1978	
	7-11 November	24-27 October	12-14 November
Mountain Duck	85,000	26,000	52,000
Grey Teal	41,000	2,700	4,500
Black Duck	830	160	530

The decrease in numbers observed was believed to be due primarily to two factors. Firstly, ducks were more dispersed in 1978 than 1977 due to the greatly increased area of open water available in the south-west. Secondly, due to prolonged breeding activity, birds had yet to congregate.

Additional surveys conducted on the 12th and 14th of November supported this belief. These surveys showed that numbers of Mountain Duck and Grey Teal had doubled and that Black Duck numbers had trebled over the period of 3 weeks. (see Table 3).

1.4. Conclusions

On the basis of these results and other data it was concluded that:

i) Sufficient breeding had occurred during 1978 to permit a shooting-season to be declared in 1978-79.

ii) Populations of most game species (except Mountain Duck) were low however, and the bag limit for these species would therefore need to be low.

iii) The season would need to commence late in order to protect late breeding birds and their young.

iv) The season would need to close early to prevent over-concentration of shooters and ducks as marginal areas dried out, and to further limit the harvest of birds.

1.5. Proposals for 1979/80

Similar surveys are proposed for 1979. The installation of depth gauges on important wetlands continues and will enable assessments of breeding conditions to be made more accurately and objectively each year. The possible use of Landsat to monitor breeding conditions (i.e. surface area of water available) will be explored. The possibility of establishing waterfowl "Abundance Indices" based on data gathered by amateurs will also be examined.

1.6. Publications 1978/79

Nil.

1.7. Publications for 1979/80

None proposed.

2. Bag-Check Data and its value in Determining Duck Season Bag-limit Regulations.

2.1. Objectives

To consider the effect of bag-limit variations on the number of ducks taken during an opening-day shoot.

2.2. Procedures

Wildlife Officers check duck-shooters "bags" to ensure that regulations concerning species and numbers of ducks to be taken are observed. Since 1973 details of shooter's opening-day bags have been forwarded to the Research Branch for analysis. This data was used during 1979 to examine shooter performance, and thus to consider the effects of bag-limit variations on the "take".

2.3. Results

Data to be presented.

2.4. Conclusions

Data collected indicate that a substantial reduction in bag-limit would be required to produce a significant lowering of opening-day take. Thus, lowering the 1973-74, 74-75 and 75-76 bag-limits from 10 to 3 birds per day would, in theory at least, have achieved "take" reductions of 46%, 50% and 48% respectively. A reduction in the limits from 10 to 5 birds per day would have achieved "take" reductions of only 26%, 27% and 26% respectively. This data will be of assistance in future years should a reduction in "take" be considered necessary.

2.5. Proposals for 1979/80

No changes to the present bag-check routine are proposed for next season. An appraisal of the "game-card" survey is proposed for 1979.

2.6. Publications 1978/79

Nil.

2.7. Publications for 1979/80

A report on the results of bag checks is proposed.

3. Photographic Library of Wetland Nature Reserves.

3.1. Objectives

To establish a library of aerial photographic coverage of all Wetland Nature Reserves of Western Australia (south of 26°S). This project follows on from the development of a punched-card index of Wetland Nature Reserves (1978 W.R.C. Research Programmes Seminar).

3.2. Procedures

Stereo black and white aerial photographic coverage (Lands Dept. 9" x 9" prints - 1:40,000) of all wetland nature reserves south of 26°S was obtained during 1978-79. Each photo-wallet (one per WNR) is cross-indexed with corresponding WNR punched-card. Card details are reproduced on photo-wallets and reserve boundaries are marked on photographs.

3.3. Results and Conclusions

A complete photographic library has now been established. This library has been immediately useful for inspection and survey of WNR's and for consideration of management proposals or problems. It has also revealed a number of apparent cases of un-authorized farming on nature reserves.

3.4. Proposals for 1979/80

The establishment of a photographic library was seen as the second phase of a three-phase programme involving: i) development of a card-index of WNR's, ii) establishment of photo-library, and iii) examination of the condition and status of land adjoining wetland nature reserves with a view to determining acquisition priorities. Phases i) and ii) are now complete and phase iii) will commence during 1979-80, provided sufficient man-power is available.

3.5. Publications

Not relevant.

4. Depth-gauging of Wetlands

4.1. Objectives

A. To provide an objective method of determining the condition (depth, area of water, and salinity)

of wetlands in the south-west of the state. This will assist in:

i) the comparison of conditions from one waterfowl breeding season to the next

ii) predicting the rate of decline of water availability through the dry season (an important factor to be considered when establishing the timing and duration of the shooting season).

iii) monitoring important aspects of the condition of wetland nature reserves (i.e. salinity and water-level fluctuations and long-term trends).

iv) determining the salinity tolerances or preferences of various species of water-birds for breeding and other purposes.

B. To assist in management of particular wetlands, e.g. Lakes Chittering, Nonalling and Red.

4.2. Procedures

PWD-approved, stainless-steel depth-gauges are installed to indicate water depth at the deepest point of each wetland. Concrete datums are installed on adjacent banks as a security measure. Soundings of the wetlands are taken and simple bathymetric maps are prepared. Commencing November 1978, two-monthly inspections of water-levels and salinities have been made.

4.3. Results

This project began in 1977 when 7 lakes were gauged. During the past 12 months a further 20 wetlands have been gauged. Results of monitoring will be presented in 1980, when a full years data will be available.

4.4. Conclusions

None at this time.

4.5. Proposals for 1979/80

During 1979 it is proposed to instal depth gauges on a further 30 wetlands in the south-west area. Two-monthly checks on water and salinity-levels by F. & W. personnel will continue through 1979.

During 1980 checks will again be made at two-monthly intervals however checks will be made alternatively by F. & W. and W.A. Field and Game Association Research Section members, thus maintaining F. & W. time-input at an acceptable level. All data will be mutually exchanged.

4.6. Publications 1978/79

Nil.

4.7. Publications for 1979/80

None proposed.

5. Survey and Control of Feral Domestic Duck and Goose Populations of Perth Metropolitan Area.

5.1. Objectives

i) To monitor the numbers of feral domestic ducks and geese on lakes and rivers of the Perth Metropolitan Area.

ii) To determine the most effective methods of reducing these populations.

iii) To control these populations at as low a level as possible, as efficiently as possible.

5.2. Procedures

In February 1978, a survey was made of feral domestic duck and goose populations on 71 wetlands from Yanchep to Rockingham. During May and July 1978, attempts were made to reduce these populations by trapping. A second survey was made in February 1979.

5.3. Results

	MALLARD	MUSCOVY	GEESE	TOTALS	MAN-HOURS
COUNTED FEB '78	209	16	25	250	41
KILLED 1978	142	2	0	144	69
REMAINDER 1978	67	14	25	106	-
COUNTED FEB '79	123	11	12(?)	146	36
KILLED 1979	99	13	5	117	
REMAINDER 1979	24	0 *	7	31 *	—
COUNTED MAR 80	63	7	18	88	

5.4. Conclusions

Trapping removed 68% of the Mallard population. Further reduction of the population would have required a shooting campaign. The Mallard population has subsequently increased by 83%. A substantial proportion of this increase is believed to be due to breeding on the wetlands. An eradication campaign is therefore required. This will involve trapping and shooting, with total effort estimated at 100 man-hours.

5.5. Proposals for 1979/80

i) Perth Metropolitan Area: A feral domestic duck eradication campaign, involving trapping and shooting, is recommended for May 1979. Additional staff will be required. A follow-up census will be made in February 1980.

ii) Remainder of the South-West: Census and control of feral domestic ducks outside the metropolitan area is also required. W.R.C. staff are poorly located to perform this task.

5.6. Publications

Not relevant.

6. Status, Movements, Survival and Development of Pelicans in Western Australia.

6.1. Objectives

i) To determine the location, size and breeding schedule of pelican breeding colonies in Western Australia.

ii) To develop an understanding of the movements, survival and development of the Australian Pelican.

6.2. Procedures

Survey flights of pelican breeding colonies, banding of runners, and banding and wing-tagging of free-flying birds continued on a reduced scale during 1978. Survey, banding and tagging procedures are described in the April 1978 W.R.C. Research Programmes Seminar report.

6.3. Results

Due to a reduction in the scale of operations only 29 runners were banded in 1978 (all at Pelican Island, Shark Bay). Only 426 free-flying pelicans were cannon-netted, and 61 of these were re-traps. Twenty-six free-flying birds were wing-tagged. Seven banded birds were recovered during 1978, one of these in Indonesia. This was the first overseas recovery of a pelican banded in Australia. Approximately 1,750 sightings of wing-tagged birds were reported.

6.4. Conclusions

None at this time.

6.5. Proposals for 1978/79

A reduction in the number of Research staff involved in waterbird/wetland matters (from 2 professional and 4 technical in 1977 to 1 professional and 2 technical in 1978 and 1979) has necessitated a re-examination of priorities and some discarding of projects. Pelican work (other than assessment of results to date) will be substantially reduced in 1979 and will probably cease in 1980.

6.6. Publications 1978/79

Nil.

6.7. Publications for 1979/80

A start will be made on publishing results of this programme. Several papers will be required.

7. Survey of "Wetland Complex Eleven".

7.1. Objectives

The Environmental Protection Authority has requested this Department to make recommendations on the need for additional wetland nature reserves in Wetland Complex Eleven (the south-coastal area from Torbay to Bluff Knoll to Gordon Inlet). The Conservation Through Reserves Committee made no recommendations on wetlands in this area. A survey of existing wetland nature reserves and of other wetlands is required before recommendations can be made.

7.2. Procedures

During 1979 a number of visits will be made to Wetland Complex 11 to determine the types of wetlands which occur (classified according to vegetation, salinity and waterbird usage) and the extent to which these types are represented in existing Nature Reserves and National Parks. Recommendations on the need, if any, for additional reserves will then be made.

7.3. Results

An initial survey from 6-10 March 1979 suggests that freshwater sedge swamps are well represented in existing nature reserves. However, few, if any, Yate *(Eucalyptus occidentalis)* swamps are reserved for conservation purposes. Further survey is required.

7.4. Conclusions

None at this time.

7.5. Proposals for 1979/80

Further survey-work will continue.

7.6. Publications

None proposed.

SEMINARS, PUBLIC RELATIONS

During 1978-79, addresses were presented to the W.A. Naturalists Club, W.A. Naturalists Club (Intermediates), W.A. Avicultural Society, Mandurah Caged-Birds Society, Mandurah Rotary, A.B.C. Radio Country Programme and TVW7 Schools Programme.

I also visited Europe for 4 months, and approximately 70% of this time was spent visiting nature reserves, waterbird research establishments, and private and government conservation agencies; participating in wader-banding activities, and attending the 17th International Ornithological Congress in West Berlin.

ADVISE AND COMMITTEE WORK

During 1978/79 approximately 30% of my time was spent on advice and committee work.

I am a member or deputy of the following committees:

1. Bird Committee of the Western Australian Wildlife Authority.
2. Standing Working Group on Birds of the Council of Nature Conservation Ministers.
3. Peel Inlet Management Authority (Deputy).
4. Planning Committee of the Peel Inlet Management Authority (Deputy).
5. Wetlands Advisory Committee of the Environmental Protection Authority.
6. Lake Joondalup Regional Open Space Technical Advisory Committee.