

# CONSERVATION OF WETLAND AREAS

Dr T. L. Riggert, a Senior Research Officer at the Department's Wildlife Research Centre, Wanneroo, was a guest speaker at the A.C.W.W. Triennial Conference held in Perth during October 1974.

The conference was attended by some 1 500 delegates representing over 33 countries of the world and was held in the Perth Concert Hall from 5 to 18 October.

Dr Riggert's paper was titled "Conservation of Wetlands" and was presented as part of the Conference segment dealing with "Man and Nature". His paper reads as follows:

"Visitors to Australia are often greatly shocked to find that what maps depict as sprawling waterways and great lake basins are in fact dry dusty salt encrusted flats void of surface water. One look at these areas brings a shattering reality that Australia is the driest continent in the world.

Approximately one-third of Australia is desert. More than half of it receives an annual rainfall of less than 15 inches and the average annual rainfall on the mainland is 16.5 inches, compared with 26 inches for all land areas in the world and 29 inches for the United States.(1) The annual flow of our entire river systems is not much more than that of one river in Europe, the Danube.

As well as the problem of low rainfall the country is faced with the problem of high potential evaporation which in most areas exceeds the average rainfall, thus causing surface waters to be present only for a very short period during and immediately after wet seasons. Australia is a low flat country without permanent snowfields and high ranges to generate "orographic" rainfall.

Freshwater is one of this nation's most sparse resources. Its supplies are both limited and unreliable and every effort must be made to utilize this commodity with the utmost care and rationale.(2)

The extent of the damage to waterfowl and their habitat has become so severe that the Report from the House of Representatives Select Committee on Wildlife Conservation recommended "that when water reclamation and conservation schemes are being planned their effects

on waterfowl and waterfowl breeding grounds be considered."(3)

Initially, consideration for Australia's water resources has centred around town and city water supplies as over one-half of the population of Australia are urban dwellers. Agriculturalists and pastoralists have laid claim to surface and under-ground water for primary production while electrical suppliers and flood mitigation authorities have energetically dammed most of the major river systems.



Reclamation destroying the natural habitat.

Until only recently almost no consideration had been given in Australia to the utilization of water by other living organisms other than man. In fact there has been such total disregard for such forms as fish and wildlife that many native species have either perished or have been reduced to critically low numbers.

The Australian avifauna that depend on wetland habitat comprise some 104 species of 19 taxonomic families. The family *Anatidae* (ducks, geese and swans) collectively known as "Waterfowl" contains nineteen species in Australia. This number may seem sparse to one familiar with the 61 species inhabiting North America and the 47 species of Great Britain. However, what the Australian continent lacks in variety of waterfowl, it makes up in the uniqueness of its form. Only South America exceeds Australia in the number of genera unique to a particular continent.

To maintain this unique and diverse assemblage of waterbirds it is necessary to maintain their specialised habitat which are wetlands, for all of them require areas of water available throughout the year, adjacent feeding grounds and the requisite special requirements for rest and reproduction. It may be stated, acre for acre, wetlands exceed all other land types in wildlife production.

Wetland areas can best be defined as any lowland covered by shallow and sometimes temporary or intermittent waters, including marshes, swamps, bogs, wet meadows, potholes, sloughs and river-bottoms. Small shallow lakes and ponds are usually also included in this



Sanitary landfill used on lake shorelines.

group as well as waterlogged soils. Wetlands may be covered by a great diversity of vegetation types.

Unfortunately most wetlands can be either drained or filled and a large percentage of them have been converted into some other form of land use. A study in Western Australia on the Swan Coastal Plain near Perth has shown this destruction to be enormous. Originally the study area contained 655 000 acres of wetlands in an area of 1 920 000 acres. Of the original amount approximately 495,000 acres (75%) have been reclaimed; almost one-third of this in the 11 years prior to 1966. Of the remaining 160 000 acres, 40% is potentially reclaimable with existing techniques.(4)

The remaining permanent freshwater swamps comprised only 10 per cent of the available wetland in this area. Since the initial study further deterioration of wetlands has occurred through sanitary landfill, industrial pollution, reclamation, drainage and salt water intrusion throughout the South-West of Western Australia.



Salt water intrusion.

The problem of wetland destruction is not only confined to Western Australia as studies along the Northern Coastal Plain of New South Wales show similar types and rates of destruction.(5) From all accounts there seems to be little doubt that the trend of wetland destruction has spread throughout the coastal plain country of the southern regions of the Australian continent.

Many countries throughout the world today are facing similar problems of wetland destruction which has led to declining wildlife populations. The U.S. Soil Conservation Service has estimated the original wetlands of the United States of America at 127 (36%) million acres of which 45 million acres have been drained.(6) The loss of these areas affects every human whether in fishing, hunting, swimming, camping, boating, picnicking or through the loss of the magnetic mystery, aesthetic beauty, or scientific intrigue that water has for man. The problem of wetland conservation is worldwide and no country in the world can afford the luxury of losing this natural asset, especially Australia.

Although there has been a marked improvement in public awareness to the destruction and pollution of wetlands, the solution and implementation of programmes to abate the present situation has not been found. Therefore I recommend the following points as necessary steps for the conservation, development and management of Australia's Wetland Systems.

1. To undertake a national wetland survey especially for the coastal plain areas of the southern regions of the Australian continent. The survey should take into account wetlands that are presently filled, those which will fill when adequate rainfall comes, and those which have been destroyed and are no longer of value to wildlife.
2. To implement research into the creation and maintenance of artificial wetland areas to serve as drought refuges for wildlife, and to provide passive and active recreation facilities for the public in areas where natural wetlands do not occur throughout the year.
3. To undertake detailed research into the ecology of wetland habitats and the wildlife that are dependent upon these areas so that an understanding of the relationships involved between the animal and its habitat can be ascertained for further conservation and management programmes.
4. To educate the public in the sociological and economic values of wetland areas which provide habitat for fish and wildlife and benefit man through recreation, water conservation and aesthetic beauty.

My thoughts today in the main have centred around waterfowl which are only a relatively small segment of the large catalogue of reptiles, birds and mammals and other living creatures that occur nowhere else in the world but Australia.

"On no other continent does a single political jurisdiction hold responsibility for the survival of so large an assemblage of the unique creatures of the world. The responsibility is a grave one, for in today's society the survival of unique populations of living creatures is seen not as a matter of internal national whim, but as a trust exercised on behalf of all people everywhere."(7)



Overcrowding on habitable lakes.

#### References—

- (1) Nimmo, W. H. R. "The World's Water Supply and Australia's Portion of It", The Journal of the Institution of Engineers, Australia, Vol. 21, No. 3 March 1949.
- (2) Water Pollution in Australia, Report from The Senate Select Committee on Water Pollution. Commonwealth Government Printing Office, Canberra 1970.
- (3) Wildlife Conservation, Report from The House of Representatives Select Committee. Australian Government Publishing Service, Canberra, 1972. Pages 26 and 27.

- (4) Riggert, T. L. Wetlands of Western Australia. Department of Fisheries and Fauna, Perth W.A., 1966.
- (5) Goodrick, G. A Survey of Wetlands of Coastal New South Wales. Tech. Memo. Div. Wild. Res. C.S.I.R.O. Aust. No. 5 1970.
- (6) Wildlife Management Techniques, The Wildlife Society, Washington D.C. 1971. Page 171.
- (7) Cowan, Ian McTaggart. The Conservation of Australian Waterfowl. A.F.A.C. Special Publication No. 2, Australian Government Publishing Service, Canberra 1973.