BJ Wkds.

SECOND INTERIM REPORT

on the

WOODCHIPS (MANJIMUP) PROJECT

by the

ENVIRONMENTAL PROTECTION AUTHORITY

Bulletin No. 7.

SEPTEMBER 1975

SECOND INTERIM REPORT

on the

WOODCHIPS (MANJIMUP) PROJECT

by the

ENVIRONMENTAL PROTECTION AUTHORITY

Bulletin No. 7.

September 1975

HON. MINISTER FOR CONSERVATION AND ENVIRONMENT

Re: Second Interim Report by EPA
on Woodchips (Manjimup) Project

The EPA presented its first Interim Report on the Woodchips (Manjimup) Project on 24 August 1973.

In that report the EPA drew attention to the fact that it was being called on to consider environmental aspects of a project approved by an Act of State Parliament in 1969. Furthermore, the then State Government had approved and signed the new Agreement with the venturers before the EPA had an opportunity to fully deliberate on the complex issues involved. The EPA's statutory responsibility and obligation, under law, therefore was twofold.

(a) to ensure that legally the Conservator of Forests had sufficient powers to remove, because of conservation reasons, areas from woodchipping activities

and

(b) to ensure that the best available expertise was used so that the judgements made by the Conservator, in liaison with the EPA, for management and excision for conservation reasons were the best that could be made at the time

These two aspects were satisfactorily resolved as follows:

As to (a), Clause 9 of the Forest Produce Licence gives the Conservator of Forests such authority.

As to (b), the EPA set up two advisory bodies regarding salinity aspects of the project and of course it had already commissioned the Conservation through Reserves Committee to review the needs for National Parks and Nature Reserves throughout Western Australia

I am pleased to advise you that, for reasons given in this report the present time is considered appropriate to present to you and to Parliament and the public the Second Interim Report on this controversial matter.

Brian J. O'Brien
CHAIRMAN

TABLE OF CONTENTS

1. PRECIS OF THE INTERIM REPORT OF 24 AUGUST 1973

The early history of association of the EPA with the woodchip proposal is explained in the first Interim Report. There are herein no new comments on a proposed wood-pulp operation because EPA has not yet been advised that such a project will prove to be viable. A watching brief is being maintained on this aspect.

From an environmental viewpoint the first report commented as follows:

(a) Forest management - the EPA accepted the advice by the Forests Department that the proposed approach would assist in silviculture management (Para. 3.4).

(b) The Environmental Protection Council (now the Conservation and Environment Council) was consulted and its advice given (Section 4).

(c) Salinity-problem potential
The potential problems of increased salinity of the important ground water, rivers, etc. in the region were well recognised. With the rationale and reservations given in detail in Section 6 of the first report, the EPA established two major study groups to investigate this aspect.

(d) Conservation aspects
General conservation issues such as fauna protection and the availability of tourist recreational facilities were mentioned in Section 7 of the first report.

2. THE PRESENT POSITION REGARDING SALINITY

The Environmental Protection Authority is now satisfied that salinity problems associated with the South West Woodchip industry are unlikely to be significant provided that logging areas are suitably selected.

This opinion was formed following consideration by the Authority of an interim technical report prepared by the sub-committee convened by the Department of Agriculture at the request of the Director of Conservation and Environment. This report has now been published as the Department of Agriculture's Technical Bulletin No. 27 entitled "The Influence of Land Use on Stream Salinity in the Manjimup Area, Western Australia". It has been endorsed by the Steering Committee on Research into the Effects of the Woodchip Industry which was created by the EPA to advise the Conservator of Forests and to assess any long-term effects.

The sub-committee reported that areas could be logged in such a way as to have a minimal effect on the quality of water resources. This supports the Environmental Impact Statement produced by the Forests Department in 1973 which claimed that the planned woodchip operations are most unlikely to cause a significant change in the salinity of associated streams.

The EPA stated in its First Interim Report that it could not completely endorse or reject the woodchips proposal because there was inadequate knowledge of the environmental implications at that time. The sub-committee's report has helped resolve this major doubt, indicating that any salination of streams consequent on the woodchip operations would be minor, and should not degrade the water resource potential of the area.

The following results of the sub-committee's investigations, together with more recent data supplied by the Steering Committee, comprise the main basis for the Authority's opinion:

(a) The results of stream sampling to determine variations in salinity in State Forests undertaken by the Forests Department at a total of 151 points since September 1973, and of similar sampling by the Department of Agriculture at 123 sites in farming areas since October 1973, showed that no salinity values in excess of the equivalent of 500 mgl^{-1}* in the base flow were found which could be attributed solely to forestry operations. Salinity values in excess of 500 mgl^{-1} were invariably associated with permanent clearing e.g. for agricultural purposes. Even in the salt-prone Perup and Wilgarup watersheds, the forested parts of the catchments had fresh base flows.

    Forestry methods have changed from exploitation as a preparation for agriculture in the early days, to cutting programmes aimed at long term forest improvement and production.

    In summary the results of the work indicate those rivers most likely to be affected by rising salt levels are those having catchments receiving less than a mean 1200 mm/year rainfall, and having appreciable areas of permanently cleared or likely to be cleared alienated land.

---

* equivalent to 500 parts per million (ppm).

Australian water quality criteria generally follow that of the World Health Organization which sets, for domestic purposes (potability), the allowable (desirable) upper limit for total dissolved solids (TDS) at 500 mgl^{-1}, with a permissible limit of 1500 mgl^{-1} *(WHO, 1971)*. The nominal limit for irrigation purposes is 500 mgl^{-1}.

(b) Rivers with a mean annual catchment rainfall less than 1200 mm and with significant areas of as yet uncleared private land in their catchments are the Donnelly, Wilgarup, Perup, Tone and Warren (Fig. 1). Of these the Donnelly, Wilgarup, Perup and Warren have appreciable areas which could be subjected to cutting for woodchips. In addition, the Deep River catchment with a mean annual rainfall of 1180 mm has significant forested area suitable for woodchipping, but only a very small area of alienated uncleared land.

(c) The cutting of forest for either woodchip or agricultural development is most unlikely to induce significant changes in the salinities of the Carey, Fly, Treen, Lefroy, Dombakup, Gardner, Weld and Shannon Rivers since all these river catchments have mean annual rainfalls in excess of 1100 mm, and all but one (the Shannon) in excess of 1200 mm. It is therefore possible to narrow down the vulnerable areas in the woodchip project to those areas of the Donnelly and Warren Rivers receiving an annual rainfall less than an amount somewhere between 1000 and 1200 mm. On the basis of high rainfall the Deep River could probably be excluded and for the other rivers agriculture development on presently uncleared alienated land represents a greater potential hazard per unit area than cutting for woodchips.

A recent independent report compiled by a Working Group of the Division of Land Resources Management of the CSIRO *(Mulcahy et al, 1975)* reinforces the results of the technical sub-committee's investigations thereby strengthening the base on which the EPA's opinion was formulated.

The CSIRO report concludes that the risk of deterioration of the water resources due to salinity induced by the woodchip operations is low for the following reasons:

(d) Leaf area measurements show that the evaporative capacity of the regenerated forest equals that of the original in a period of less than five years. This means that regrowth, five years after cutting, will be transpiring water into the atmosphere equal in amount to that of the original forest, and should be sufficient to prevent excessive ground water flow with its contained salt, to the stream system.

(e) Predictions of likely future demands for water suggest that development of the water resources in this area will not take place for at least 15 years and possibly for much longer. In either case there should be sufficient time for the hydrologic system to return to a balanced condition ((d) above).

(f) The risk of deterioration of the water resource in the high rainfall Karri forest is minimal as the quantity of salt accumulated in the soils is low. Even in Jarrah-Marri forest where salt accumulation is much greater, leaf area measurements on regenerated areas suggest that only some temporary deterioration is likely.

3. FOREST MANAGEMENT

Under natural conditions fire is an integral part of the forest ecosystem and promotes the renewal of Karri forest. When Karri forest is protected from fire, as is the case in a number of areas, the result is a stand of old Karri trees which has poor potential for renewal. Fire, under natural conditions, destroys the old Karri trees creating a mineral ash bed. This enables seedlings to thrive and grow competitively with each other in sunlight, formerly denied them by the canopies of the old trees. The strongest seedlings survive and eventually become the trees of the regenerated forest.

The clear felling technique envisaged in the Karri forest parallels the natural sequence of events outlined above, viz. small scattered coupes of about 100 hectares are cleared of millable timber with the exception of selected large high quality karri; all other timber suitable for woodchipping is removed; remaining under-brush and non-usable timber is rolled; when the karri trees are in seed the area is burned causing the Karri to drop its seed into the ash bed which favours germination and establishment; then the large seed trees are removed as saw-mill timber. In this way a uniform age karri-rich forest regenerates in much the same way as it would have under the natural process of wild fire which over the past thousands of years, before the advent of European man, has generated our existing forests. It is the most efficient, and in fact only successful method of karri regeneration.

In contrast to the above, if cutting for saw-mill timber were to be maintained at a rate necessary to meet the State's timber demand under a selective karri logging programme in the karri/marri forest, the result would be a proliferation of marri. The marri, having no predator in the form of logging, requiring no ash bed for seed germination and having a generally greater capacity for regeneration under existing canopy, would regenerate to the virtual exclusion of the karri resulting in an ecologically impoverished, poor quality forest of little commercial, or aesthetic value.

4. THE SHANNON RIVER BASIN - CONSERVATION ASPECTS

In its First Interim Report the Authority envisaged that conflict could arise between environmental issues and woodchip requirements. Such a conflict was recently brought to light in the form of the Conservation through Reserves Committee's recommendation, that the Shannon River drainage basin for aesthetic reasons, should be excised from the woodchip licence area, clashing with the Forests Department's plan to include in the first five years' cutting some areas in this catchment.

The Authority has received submissions from the CTRC, the public and the Forests Department in relation to the Shannon River basin. The present opinion of the EPA is that limited cutting (see below) in the Shannon River basin is not incompatible with its long term conservation and water catchment values. The EPA has therefore decided to allow cutting for the first five years of the Agreement and to review its attitude to the cutting in the light of on-going research during this period. Its decision is partly based on the history of the area and on the need for the rehabilitation of some degenerate areas.

The Shannon basin contains limited healthy virgin forest, selective logging of the area having been undertaken over a 20 year period from the late 1940's. Timber cutting commenced in the north-eastern segment of the basin, and along the River to the south of the Shannon townsite. A railway line was constructed leading northward to the Mill which was established in 1951-52. In the 1960's intensive logging within the basin also took place from the Northcliffe Mill.

After discussions with the EPA, the Conservator of Forests has agreed that a cutting and regeneration programme totalling no more than 9% of the basin will be permitted (Fig. 2) to provide the opportunity for the Forests Department to rehabilitate some degenerate areas, whilst examining the possibility of redirecting future cutting activities outside the catchment for the balance of the period of the Agreement, if this becomes necessary. Additionally, the Conservator has undertaken not to allow further woodchip or saw-log operations in the remaining 91% of the Shannon River drainage basin without the Authority's approval. The five year programme allows for clear felling of 1699 hectares for woodchips, and the selective logging of Jarrah trees for saw logs on an additional 2244 hectares.

This programme represents an essential facet of forward planning in regard to determining environmentally acceptable forestry practices. Furthermore, the Shannon basin is not, as indicated earlier highly susceptible to salination problems from forest cutting for woodchips and the impact if any in this respect, can confidently be expected to be minimal as the acreage involved is small in relation to the total acreage of the catchment.

5. CONCLUSION

The EPA is now satisfied that:

(a) salinity problems associated with the Manjimup woodchip project will be minimal, provided that the logging areas are suitably selected,

(b) the forest management techniques to be employed are the best for the assured regeneration of prime forest,

and

(c) some degenerated parts of the Shannon basin totalling no more than 9% of the catchment area, should be cut over and rehabilitated.

The EPA will continue to maintain a watching brief of developments, and ensure that appropriate surveys, monitoring and surveillance continue, with the assistance of those groups who have been active to date.

REFERENCES

EPA, 1973 - First Interim Report on the Woodchips (Manjimup) Project, Environmental Protection Authority

Mulcahy, M.J., McArthur, W.M., Hurle, D.H., Carbon, B.A., Bennett, D., and Barron, R., 1975 - Report on some aspects of the environmental effects of woodchip felling in South Western Australia. CSIRO, Division of Land Resources Management, Report.

Trotman, C.H. (Edit.), 1974 - The influence of land use on stream salinity in the Manjimup area, Western Australia. West. Australia Department of Agriculture, Technical Bulletin 27.

WHO, 1971 - International standards for drinking water, 3rd edition. World Health Organization, Geneva.

WOODCHIP LICENCE AREA
River Catchment Systems

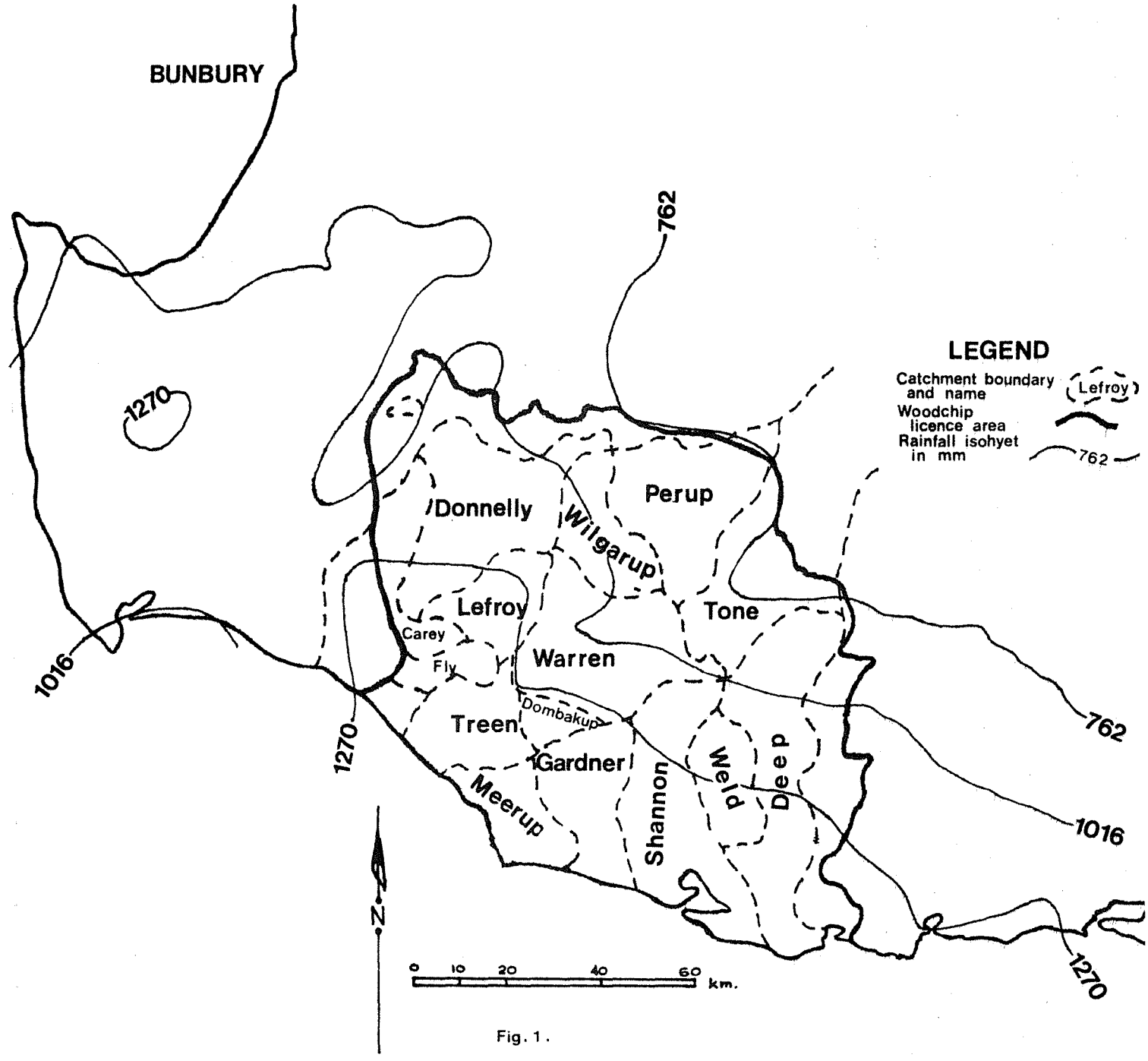

Fig. 1.

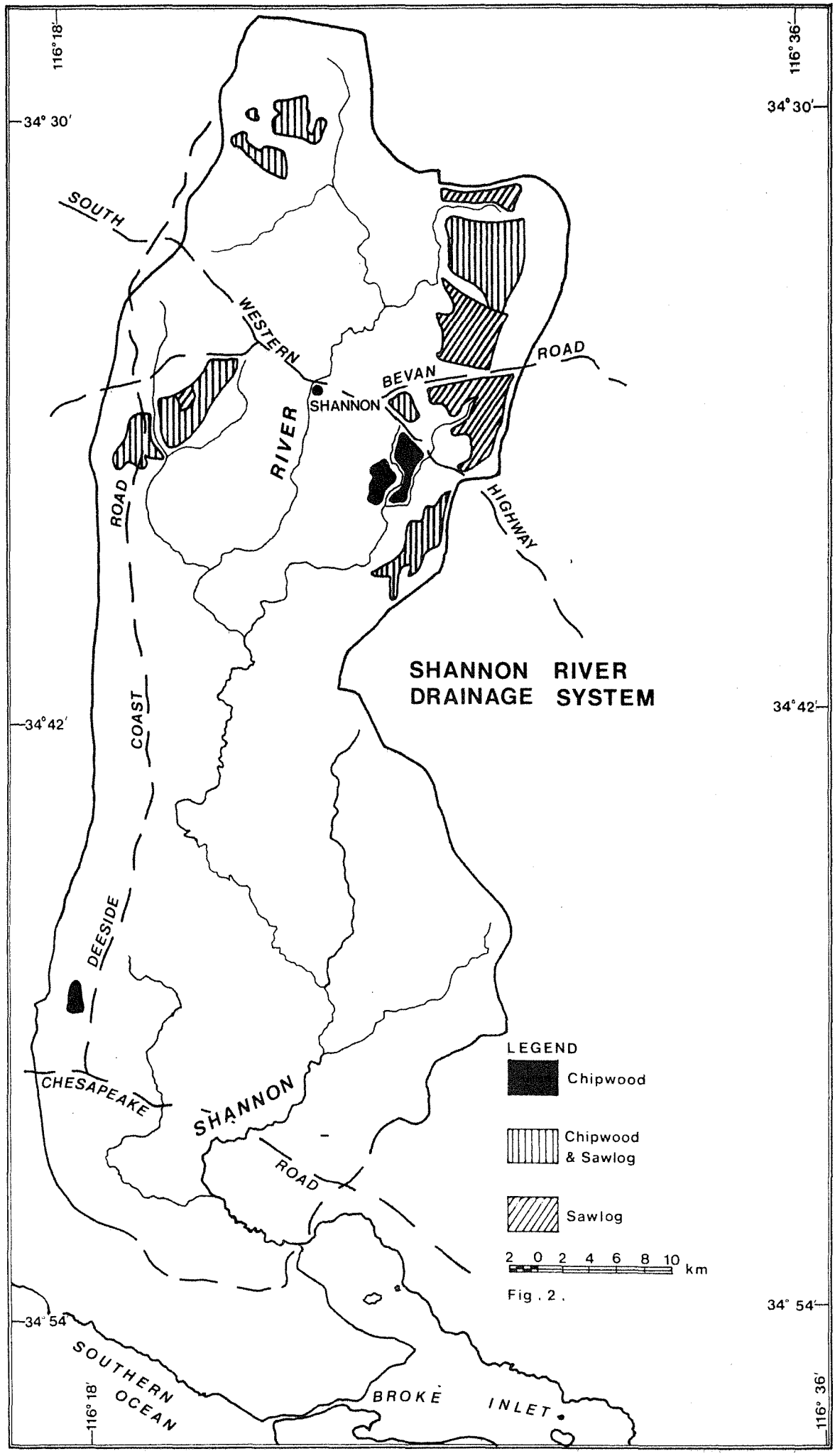
116° 18'
116° 36'
34° 30'
34° 42'
34° 54'
SOUTH WESTERN ROAD
BEVAN ROAD
SHANNON
RIVER
ROAD
HIGHWAY
COAST
DEESIDE
CHESAPEAKE
SHANNON ROAD
SOUTHERN OCEAN
BROKE INLET
SHANNON RIVER DRAINAGE SYSTEM
LEGEND
Chipwood
Chipwood & Sawlog
Sawlog
2 0 2 4 6 8 10 km

Fig. 2.