PAPER FOR A SEMINAR ON ECOLOGY AND ENVIRONMENTAL ASSESSMENT

ENVIRONMENTAL ASSESSMENT FOR THE DONNYBROOK SUNKLAND PINE PROJECT

A. C. VAN NOORT - FORESTS DEPARTMENT

The Forests Department has embarked on a project to establish pine plantations by conversion of native forest in the area known as Donnybrook Sunkland.

The subject area comprises some 283 00 ha of State Forest, generally poor quality jarrah forest, lying between Busselton, Nannup and Margaret River some 250 km south of Perth. It is virtually the only area of suitable land available to the Forests Department for the large scale pine planting programme required to provide the State's future timber needs. The plan envisages the establishment of 60 000 ha of pine plantation, approximately one fifth of the total area, over a period of 30 years. (Forests Department 1975)

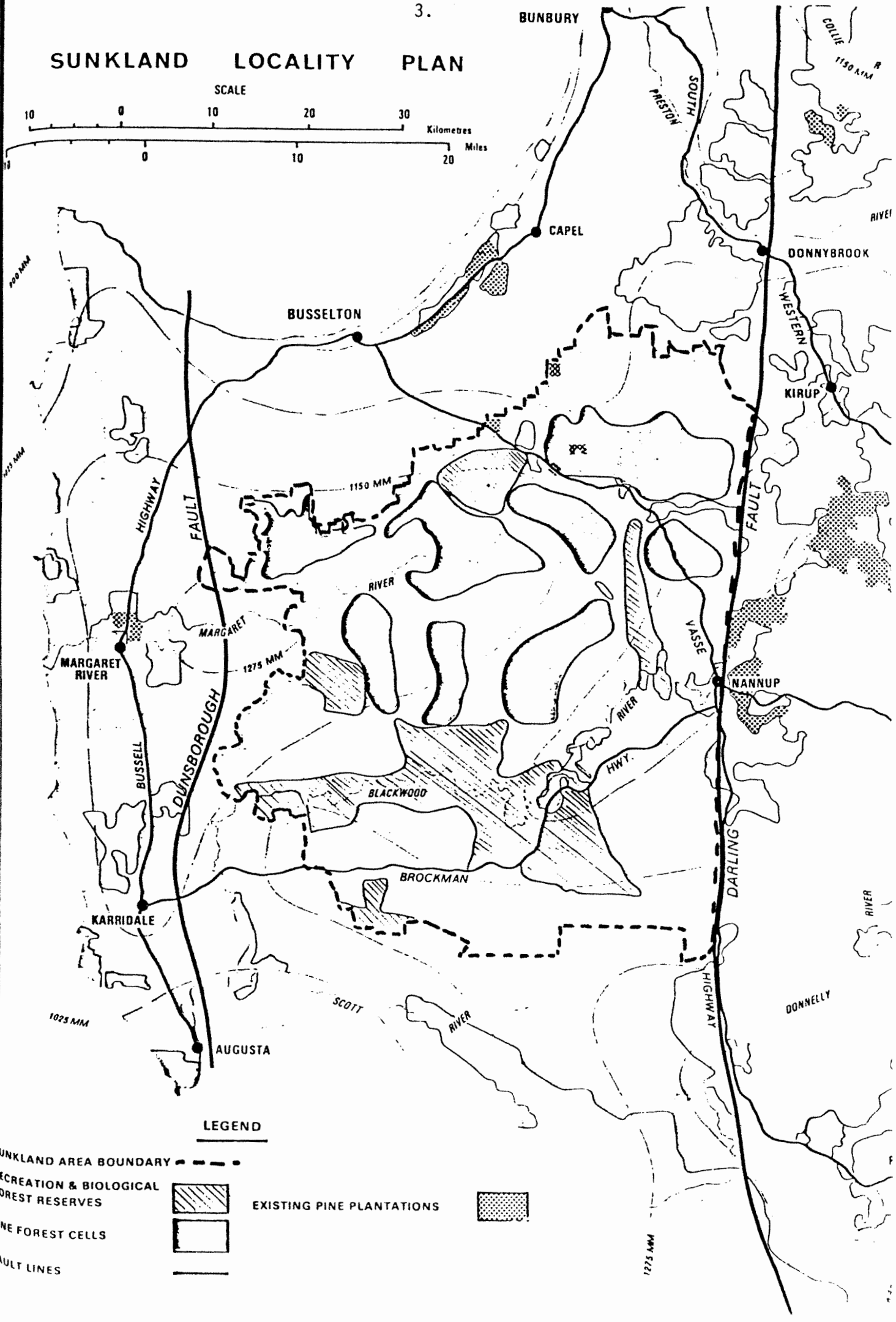
Investigation and planning for the project has been carried out entirely by Forests Department staff. C.S.I.R.O. Division of Land Resources were invited to participate in an evaluation of the project as an independent land use planning authority, but they declined. The objective of planning was to assess and allocate land use priorities and to develop a plan for the management of the whole Sunkland area taking account of the need for land for pine planting while providing for the protection of other forest values.

Study of the technical feasibility of the project commenced in 1970. The first information sought was the identification of sites suitable for the growth of pines and the distribution of such sites. This was determined by the establishment of trial plantings and by extensive soil and vegetation surveys. This work indicated that substantial areas are available but that they are scattered and intricately interpersed with unsuitable sites. It was possible to select areas containing a high proportion of suitable land and these were designated as plantation cells.

Other studies examined the environmental aspects of flora and fauna of the area, hydrology and recreation requirements. The impact of the proposed project was considered. A plan was prepared which nominated land use priorities for the whole area and made provision for the conservation of the various forest values. Specific areas were nominated for pine plantations, for recreation and for conservation of particular aspects of flora and fauna. The bulk of the area remains as hardwood forest and will be managed for timber production. (see plan) (Forests Department Forest Focus 16 1975).

The plan establishes the following land use zones in the Sunkland.

Category	Area (ha)
1. Pine Plantation - production priority	60 000
2. Hardwood Forest - production priority	185 000
3. Hardwood Forest - recreation priority	18 000
4. Hardwood Forest - flora and fauna priority	14 000
5. Hardwood Forest - scientific priority	6 000
	283 000


SUNKLAND LOCALITY PLAN
SCALE
10 0 10 20 30
Kilometres
10 0 10 20
Miles
BUNBURY
CAPEL
DONNYBROOK
BUSSELTON
KIRUP
MARGARET RIVER
KARRIDALE
AUGUSTA
NANNUP
1150 MM
1275 MM
1025 MM
HIGHWAY
FAULT
DUNSBOROUGH
BUSSELL
MARGARET
RIVER
BLACKWOOD
BROCKMAN
SCOTT
VASSE
HWY.
DARLING
SOUTH WESTERN
PRESTON
COLLIE
DONNELLY
LEGEND
SUNKLAND AREA BOUNDARY
RECREATION & BIOLOGICAL FOREST RESERVES
PINE FOREST CELLS
FAULT LINES
EXISTING PINE PLANTATIONS

The Sunkland investigations have produced a great increase in knowledge and appreciation of the ecology of the area.

Flora and Fauna

The extensive soil and vegetation surveys (McCutcheon 1978, 1980) carried out for site evaluation produced by far the most comprehensive and detailed information about the occurrence and distribution of species ever recorded for the area. Several areas of outstanding botanical interest have been identified and set aside as management priority areas. (M.P.A.s)

eg. Whicher, Mowen, St. John Brook, Chester and Paget M.P.A.'s. The whole of the Milyeannup Block, one of the least disturbed areas of jarrah forest in the State has been given special status to insure that it remains an undisturbed scientific reference area. (Forests Department - General Working Plan 1977, Environmental Protection Authority 1976).

The plantation project certainly does not threaten the survival of any plant species or vegetation types in the Sunkland.

Jarrah Dieback (Phytophthora cinnamomi), widespread in the area, poses a great threat to the native forest. The present position and likely future extent of the disease has been assessed and is taken into account in planning.

Limited fauna surveys have been carried out by the Department's fauna research section (Skinner 1974). Invitations to outside bodies to participate in these studies have produced limited response due, presumably, to more urgent needs elsewhere.

Spotlight and trapping surveys and bird population studies indicate a normal assemblage of fauna as observed in similar jarrah forest areas elsewhere.

Because of the large area of retained native forest with wide corridors linking forest types, it is considered that adequate provision has been made for the maintenance of existing faunal populations.

It is anticipated that some species of birds will benefit from the creation of additional forest edges and there appears to be a minor population explosion at present among the kangaroos and emus which appreciate the easy access to food in the young plantation areas.

Hydrology

The Sunkland area contains considerable water resources both as fresh water streams and underground supplies.

Surveys of stream salinity throughout the area show that streams arising in the sunkland have very low levels of salinity (McKinnell 1976). This suggests that the destruction of forest by Phytophthora cinnamomi or change in land use from forest to farming has not resulted in any significant rise in salinity of the run off.

Subsurface sampling for salt loads has indicated comparatively low levels of chlorides at depth. (Stirling 1979).

Large scale, long term hydrological studies have been established in co-operation with the Public Works Department to calibrate stream flow and to monitor the effects of clearing and conversion to pine. (Richmond 1980).

Recreation

Recreational values in the area have been considered and provision made for thier conservation.

The Blackwood River in its course across the Sunkland provides a most valuable recreation area. Because of its high salt content the river is unlikely to be dammed for water supply purposes and its use for recreation, eg canoeing, fishing, swimming and camping will undoubtedly increase. A broad strip of land on either side of the river is tobe managed for recreational purposes and for the maintenance of scenic values. The Blackwood River M.P.A.

Part of the Margaret River near the junction of its north and south branches is a popular fishing and picnic area. Recreational values will be preserved by the establishment of the Rapids management priority area for recreation here.

Statement of Intent

In 1975, 2 years prior to commencement of the project, the Department prepared a Statement of Intent which explained the reasons for the project, the plans for the management of the plantations and the remaining native forest and the environmental impacts of the project as assessed by foresters. The statement was made available for public scrutiny to allow opportunity for comment and suggestions.

Opposition to the project was expressed by some conservation groups who are opposed in principle to conversion of any native forest to pine plantation. Government organisations generally and the Environmental Protection Authority in particular appreciated the long term merit of the proposed useage of the area from an environmental and conservation point of view.

Conclusion

The nature of the project allows for continuing appraisal. Afforestation is planned to proceed at a steady rate over a 30 year period. Studies to date have produced a land use plan for the Sunkland which accommodates the afforest-ation project and provides for the conservation of other forest values. The studies are on going and the plan can be modified in response to new information or changing circumstances.

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