

1902.

WESTERN AUSTRALIA.

ANNUAL REPORT

OF THE

WOODS AND FORESTS DEPARTMENT

FOR THE

Year ended 31st December, 1901,

BY

C. G. RICHARDSON,

ACTING CONSERVATOR OF FORESTS.

Presented to both Houses of Parliament by His Excellency's Command.

PERTH:

BY AUTHORITY: WM. ALFRED WATSON, GOVERNMENT PRINTER.

No. 12.

1902.

APPROXIMATE COST OF PAPER:

Printing (850 copies), £12 15s. 3d.

Lithographing Maps (850 copies), £14 5s. 7d.

CONTENTS.

	PAGE
SECTION I.	7
REVENUE AND EXPENDITURE	7
SECTION II.	8
THE STAFF	8
SECTION III.	8
PLANTING OPERATIONS OF DEPARTMENT	8
SECTION IV.	10
STATE NURSERY	10
SECTION V.	11
DISTRIBUTION OF TREES	11
SECTION VI.	12
TIMBER IMPORTS AND EXPORTS	12
SECTION VII.	19
RAILWAY SLEEPERS FOR EXPORT	19
SECTION VIII.	19
STATE FORESTS	19
SECTION IX.	20
ADVERTISING LOCAL TIMBERS	20
SECTION X.	20
THE PLANS	20

To the Hon. Dr. Jameson, M.L.C., Minister for Lands.

Woods and Forests Department,
20th May, 1902.

SIR,

I have the honour to submit this, my third, Annual Report upon the operations and progress of the Woods and Forests Department during the year ended the 31st of December, 1901.

I have the honour to be,

Sir,

Your obedient Servant,

C. G. RICHARDSON,

Acting Conservator of Forests.

WOODS AND FORESTS DEPARTMENT.

Report by the Acting Conservator of Forests.

SECTION I.

REVENUE AND EXPENDITURE.

1. In order that the revenue and expenditure of the Department, since its inception in 1895, may be seen at a glance, I beg to subjoin the following statement showing the revenue and expenditure up to the end of 1901.

2. Statement of Revenue and Expenditure from 1st January, 1895, to 31st December, 1901:—

Year.	Revenue.	Expenditure.
1st January, 1895, to 31st December, 1895	£ 3,175 5 2	£ 1,108 5 5
" 1896 " " 1896	4,838 11 2	2,020 11 5
" 1897 " " 1897	12,320 6 4	3,489 14 4
" 1898 " " 1898	30,150 6 3	3,356 5 7
" 1899 " " 1899	16,999 11 3	2,438 7 5
" 1900 " " 1900	15,525 19 2	2,648 11 10
" 1901 " " 1901	18,477 16 2	2,747 6 3

3. From the above statement it will be seen, therefore, that to the end of 1901 the revenue has exceeded the expenditure by the large amount of £83,678 13s 3d.

REVENUE AND EXPENDITURE FOR THE YEAR 1901.

4. The revenue derived from our Forests for the year under review amounted to the sum of £18,477 16s. 2d., and was derived from the rents of Timber Leases, Timber Concessions, Royalties, and various monthly Timber Licenses.

5. The total amount of revenue for the year is in excess of that of 1900, which amounted to £15,525 19s. 2d., and shows the satisfactory increase of £2,951 17s.

6. The total expenditure of the Department for the year 1901 amounted to £2,747 6s. 3d., being £98 14s. 3d. more than that of the calendar year ended the 31st of December, 1900.

SECTION II.
THE STAFF.

7. The Officers of the Department are as follow :—

Head Office :

C. G. Richardson, Acting Conservator of Forests ;
F. U. Palmer, Clerk ;
D. W. Arnold, Clerk and Messenger.

Forest Rangers :

S. Patterson, Chidlow's Well, E.R. ;
H. S. Brockman, Donnybrook ;
J. J. Fitz-Gerald, Waroona, S.W.R. ;
J. H. Gregory, Northam ;
E. Kelso, Coolgardie.

Nurseryman :

A. McFarlane, State Nursery, Hamel, S.W.R.

Caretakers :

T. W. Allen, Point Walter Reserve ;
T. Delaporte, Pine Plantation, Bunbury.

SECTION III.

PLANTING OPERATIONS OF THE DEPARTMENT.

A.—PINE PLANTATION, BUNBURY.

8. An additional three thousand pines (*Pinus pinaster*) were planted out at Bunbury during the year under review.

9. This plantation, I regret to say, is not in as flourishing a condition as could be desired. The pines, although making in many instances good growth, ultimately succumbed to the long drought during the summer months.

10. The plantation, however, was merely an experimental one ; but, from the results, I would not recommend any further planting so near the coast, as there is little doubt that the land is too poor, even for pines, and that, with the absence of summer rains, there is little chance of such plantations ever being a complete success.

11. I am of opinion, however, that somewhat further back from the coastal sand-hills areas eminently suited to the growth of the pine could be found ; and, if the Hon the Minister approves, steps can be taken to form another plantation in some more favourable locality next year.

12. I may add that it was the intention of the Department to form another pine plantation on the coast, but further back from the sandhills ; and, with this end in view, a favourable spot was selected by the nurseryman (Mr. McFarlane) and myself.

13. It was proposed to grub and clear this area of ten acres, plough and harrow same, plant it with pines, and cultivate round the young trees during the summer months, so as to give them every chance of thriving ; but, unfortunately, the then Minister (Mr. Sommers) did not feel justified in sanctioning the necessary expenditure of £130, and consequently the plantation could not be formed.

14. If more funds were placed at the disposal of the Department for the formation of plantations, particularly of pines, there is little doubt but that they would prove a valuable asset to the State in years to come.

B.—PLANTING AT POINT WALTER RESERVE.

15. Something like 200 trees of sorts were planted on this favourite resort during the year 1901, the greater number of which are looking healthy and vigorous.

16. This reserve has now become a very popular picnic ground, and, as lack of ornamental shade trees is felt, I propose continuing the planting next year.

C.—WATTLE PLANTATIONS.

17. Great success has attended our wattle sowing near the Harvey Railway Station, on the South-Western Railway; some of the young trees being now three feet in height.

18. In April last about five acres of land in the locality mentioned were cleared of stumps, ploughed, harrowed, and sown broadcast with seed of the wattle of commerce (*Acacia pycnantha*).

19. This and other similar plantations which have been formed with the view of serving as object lessons are, I am glad to say, attracting the attention of our settlers, and the demand for information as to wattle culture and seed for sowing is on the increase.

D.—SANDALWOOD PLANTATIONS.

20. The sandalwood plantations at Meckering and Pingelly are still being gradually extended, 1,200 nuts having been sown during the season of 1901.

21. A large percentage of the nuts have germinated, and some of the young plants have made remarkable growth; but the protracted drought and the absence of summer rains generally are being keenly felt by the young seedlings, and even by the surrounding scrub.

22. These plantations are, of course, purely experimental ones; but, as all the work of collecting and sowing the nuts is performed by the Forest Rangers for the District, no expense is incurred; while, on the other hand, valuable information is being obtained which may hereafter be of assistance in effecting the restoration of the now denuded areas of this valuable tree.

E.—PLANTING ON GOLDFIELDS.

23. Experimental planting on a small scale was indulged in on the Eastern Goldfields during the year under review, but without success, and there is no doubt in my mind that any extensive scheme of planting there would cost very large sums of money, and, even then, probably end in failure, owing to the adverse climatic conditions.

24. I was much pleased, however, to notice, during my tour of inspection through the Coolgardie Goldfields in November last, that the indigenous timbers are reproducing themselves in a wonderful manner by natural means, and I am confident that the now denuded areas will in a comparatively short time again supply a large amount of timber suitable for mining purposes and firewood, thus rendering any scheme of reforestation unnecessary on these goldfields.

SECTION IV.

THE STATE NURSERY.

25. The permanent plantations at the State Nursery were further extended during last season, some ten acres having been planted with *Pinus insignis*, *Pinus excelsa*, *Pinus pinaster*, Sydney red cedars, catalpas, walnuts, and Indian cedars.

26. All the trees in these plantations are flourishing, and present a very fine appearance, showing how easily, with a little attention, exotic timber trees can be grown in Western Australia.

27. In fact, the growth of the pines is in many instances phenomenal, and there is little doubt that in a comparatively few years the areas under pines will supply the present great want of soft woods suitable for making fruit cases, etc., etc.

LIST OF TREES AND SHRUBS RAISED IN NURSERY DURING THE YEAR 1901.

Plants raised in Pots.

Schinus Molle	...	...	Pepper Tree	...	5,600
Euc. corynocalyx	...	...	Sugar Gum	...	5,256
Euc. ficifolia	...	...	Red Flowering Gum	...	199
Euc. macrocarpa	...	...	The Desert Flowering Gum	...	80
Photinia serrulata	...	...	Chinese Hawthorn	...	97
Gleditschia triacanthos	...	...	Honey Locust Tree	...	101
Grevillea robusta	...	...	Silky Oak	...	570
Tristania conferta	...	...	White Box	...	475
Ceratonia Siliqua	...	...	Locust Bean	...	494
Laurus camphora	...	...	Camphor Laurel	...	198
Agonis flexuosa	...	...	Peppermint Tree	...	250
Protea millifera	...	...	Sugar Bush	...	126
Lagunaria Pattersoni	...	...	Pyramid Tree	...	456
Sterculia Acerifolia	...	...	Queensland Flame Tree	...	98
Pittosporum undulatum	...	...	Cheese Wood	...	640
Ficus macrophylla	...	...	Moreton Bay Fig	...	439
Do. Australis	...	...	Port Macquarie Fig	...	1,463
Do. elastica	...	...	India-rubber Tree	...	616
Phoenix dactylifera	...	...	Date Palm	...	311
Araucaria excelsa	...	...	Norfolk Island Pine	...	392
Do. Bidwilli	...	...	Bunya Bunya Pine	...	60
Pinus Pinaster	...	...	Maritime Pine	...	328
Cedrus deodara	...	...	Indian Cedar	...	886
Sequoia gigantea	...	...	The Mammoth Tree of California	...	103
Cupressus glauca	...	...	Cedar of Goa	...	149
Do. sempervirens stricta	...	...	Upright Cypress	...	162
Do. Lawsoniana	...	...	Lawson's Cypress	...	516
Do. pendula	...	...	Weeping Cypress	...	150
Do. torulosa	...	...	Twisted Cypress	...	414
Do. Macrocarpa	...	...	...	...	320
Do. Californica	...	...	Californian Cypress	...	136
Do. Various	...	...	...	...	180
Thuja occidentalis	...	...	Arbor Vitæ	...	203
Frenella verucosa	...	...	W.A. Cypress Pine	...	103
Callitris arborea	...	...	African Frenella	...	214
Acacia pycnantha	...	...	Golden Wattle	...	656
Do. decurrens	...	...	Black Wattle	...	160
Do. dealbata	...	...	Queensland Silver Wattle	...	180
Do. Baileyana	...	...	Silver Weeping Wattle, N.S.W.	...	221
Creepers	...	...	...	...	986
Flowering shrubs, etc.	...	...	...	...	1,160
Total number of trees raised in pots					25,148

Plants raised in Bamboo Tubes.

Acacia pycnantha	...	...	Golden Wattle	...	6,300
Euc. corynocalyx	...	...	Sugar Gum	...	2,600
Total number of trees raised in Bamboo Tubes					8,900

List of Trees raised open-rooted.

Pinus insignis	...	...	Remarkable Pine	...	7,596
Do. halepensis	...	...	Aleppo Pine	...	2,380
Do. Pinaster	...	...	Maritime Pine	...	6,180
Do. excelsa	...	...	Bhotan Pine	...	1,040
Do. sylvestris	...	...	Scotch Fir	...	986
Do. radiata	...	...	...	...	3,000
Cupressus sempervirens	...	...	Spreading Cypress	...	704
Sterculia diversifolia	...	...	Kurrajong	...	1,300
Do. acerifolia	...	...	Queensland Flame Tree	...	160
Quercus Hodgkinsonii	...	...	Evergreen Oak	...	2,064
Do. Robur	...	...	English Oak	...	496
Juglans regia	...	...	Walnut	...	168
Acer negundo	...	...	The Box Elder	...	196
Do. pseudo-platanus	...	...	The Sycamore	...	240
Fraxinus nigra	...	...	Black Ash (America)	...	3,346
Do. excelsior	...	...	European Ash	...	168
Melia composita	...	...	White Cedar	...	5,520
Robenia pseudo-acacia	...	...	Locust Acacia	...	2,016
Salix aurea	...	...	Basket Willow	...	609
Populus dilatata	...	...	Lombardy Poplar	...	6,410
Do. alba	...	...	Silver Poplar	...	1,462
Tamarix Gallica	...	...	Flowering Cypress	...	1,746
Platanus occidentalis	...	...	Plane Tree	...	1,116
Catalpa bignonioides	...	...	...	...	3,316
Lygustrum Lucidum	...	...	White Privet	...	408
Do. Japonicum	...	...	Japanese Privet	...	700
Do. Pubescens	...	...	Privet	...	636
Total number of trees raised open-rooted					53,963

Trees raised in Seed-beds.

Pinus ponderosa	...	...	Yellow Pitch Pine	...	802
Do. Sylvestris	...	...	Scotch Fir	...	300
Do. Halepensis	...	...	Aleppo Pine	...	2,060
Do. Canariensis	...	...	Canary Island Pine	...	250
Do. Pinaster	...	...	Maritime Pine	...	3,200
Do. insignis	...	...	Remarkable Pine	...	4,360
Abies Douglassii	...	...	Oregon Pine	...	316
Melia Composita	...	...	White Cedar	...	18,000
Robenia Pseudo-Acacia	...	...	Locust Acacia	...	2,316
Cedrela Australis	...	...	Red Cedar	...	640
Phoenix dactylifera	...	...	Date Palm	...	878
Pittosporums of sorts	...	...	...	...	763
Tristania conferta	...	...	White Box	...	430
Lagunaria Pattersoni	...	...	Pyramid Tree	...	300
Cupressus of sorts	...	...	Cypresses	...	1,860
Acacias of sorts	...	...	...	...	700
Agonis flexuosa	...	...	Peppermint	...	400
Ficus of sorts	...	...	...	...	316
Various	...	...	...	...	360
Total number of trees raised in seed-beds					38,251
Grand Total					126,262

SECTION V.

DISTRIBUTION OF TREES.

28. During the year 1901 numerous applications were received for trees for planting in State School grounds, streets, public parks, etc., and from settlers for shelter purposes.

29. The plants distributed consisted of trees and shrubs of various kinds raised at the State Nursery, and the following list shows the number and the various public bodies to which same were sold or presented:—

Pine Plantations	14,228
Experimental Purposes	15,756
Municipalities	3,725
Schools	1,511
Churches	1,341
Zoological Gardens	4,791
Railway Department	3,262
Roads Boards	1,600
Wardens' Courts	30
Agricultural Halls	241
Hospitals	200
Cemetery Boards	2,511
Orphanages	150
W.A. Deaf and Dumb Institution	125
Victoria Institute for the Blind	52
Industrial Schools	712
Bowling Club	50
Medical Department	40
Albany Park Board	800
Mechanics' Institutes	50
Government Gardens	30
Total	51,205

SECTION VI.

TIMBER IMPORTS AND EXPORTS.

30. By the courtesy of the Registrar General, I am enabled to furnish the following figures showing the Timber Imports and Exports for the years ended 31st December, 1900, and 1901.

TIMBER IMPORTS FOR YEARS 1900 AND 1901.

A RETURN SHOWING THE VALUE OF TIMBER IMPORTED INTO WESTERN AUSTRALIA, AND THE COUNTRIES FROM WHENCE IMPORTED, FOR THE YEAR 1900.

Countries whence Imported.	Value.		
	British and Foreign Produce.	Australian Produce.	Total.
BOARDS:	£	£	£
United Kingdom	37	...	37
Victoria	2,012	300	2,312
South Australia	1,924	130	2,052
New South Wales	2	314	316
United States of America	3,354	...	3,354
Germany	125	...	125
Sweden	4,127	...	4,127
Total	11,581	744	12,325
LATHS:			
Victoria ... ..	...	2	2
United States of America	486	...	486
Total	486	2	488
WOODEN HOUSES:			
United Kingdom... ..	192	...	192
Victoria ... ..	...	1	1
Total	192	1	193

A Return showing the Value of Timber imported into Western Australia and the Countries from whence imported, for the Year 1900—continued.

Countries whence Imported.	Value.		
	British and Foreign Produce.	Australian Produce.	Total.
WORKED:	£	£	£
United Kingdom... ..	3,144	...	3,144
Victoria	1,405	2,273	3,678
South Australia	43	213	256
New South Wales ... ..	...	114	114
Singapore	75	...	75
United States of America	313	...	313
Sweden	4,319	...	4,319
Total	9,299	2,600	11,899
UNWORKED:			
United Kingdom	174	...	174
Victoria	1,068	2,837	3,905
South Australia	765	403	1,168
New South Wales	906	3,332	4,238
Queensland ... ..	...	143	143
New Zealand ... ..	...	1,535	1,535
Tasmania ... ..	...	82	82
Singapore	1,871	...	1,871
Cape Colony	1	...	1
Canada	875	...	875
United States of America	7,518	...	7,518
Sweden	792	...	792
Total	13,970	8,332	22,302
IN BULK, ROUGH, OR HEWN:			
Victoria	5	216	221
South Australia ... ..	...	16	16
New South Wales ... ..	...	215	215
New Zealand ... ..	...	14	14
United States of America	2,332	...	2,332
Sweden	210	...	210
Total	2,547	461	3,008
IN SHORT LENGTHS, FOR CASE-MAKING:			
United Kingdom	31	...	31
Victoria	811	95	906
South Australia	763	80	843
New South Wales	289	302	591
Singapore	386	...	386
United States of America	272	...	272
Belgium	30	...	30
Total	2,582	477	3,059
Grand Total, Timber Imports	40,557	12,517	53,274

A RETURN SHOWING THE VALUE OF TIMBER IMPORTED INTO WESTERN AUSTRALIA, AND THE COUNTRIES FROM WHENCE IMPORTED, FOR THE YEAR 1901.

Articles and Countries whence Imported.	Value.	
	British and Foreign Produce.	Total.
DOORS:	£	£
Architraves, Mouldings, etc.:		
New Zealand	8	8
Ash, Hickory, Oak, and Walnut, undressed:		
United Kingdom	43	43
Corkwood, unmanufactured:		
United Kingdom	15	15
1 $\frac{3}{4}$ in. and over:		
Victoria	2	2
United States of America	125	125
Total	127	127
Over 1 $\frac{1}{2}$ in. and under 1 $\frac{3}{4}$ in.:		
Victoria	8	8
New South Wales	364	364
United States of America	371	371
Total	743	743
1 $\frac{1}{2}$ in. and under:		
Victoria	202	202
New South Wales	1,450	1,450
New Zealand	7	7
United States of America	1,170	1,170
Total	2,829	2,829
LATHS:		
Victoria	8	8
South Australia	86	86
New South Wales	101	101
Canada	105	105
United States of America	220	220
Total	520	520

Articles and Countries whence Imported.	Value.		
	British and Foreign Produce.	Australasian Produce.	Total.
BOARDS:	£	£	£
United Kingdom	27	...	27
Victoria	1,364	...	1,364
South Australia	306	39	345
New South Wales	35	...	35
New Zealand	242	...	242
Singapore	42	...	42
Norway	7,671	...	7,671
Sweden	12,661	...	12,661
United States of America	4,461	...	4,461
Total	26,809	39	26,848

A Return showing the Value of Timber imported into Western Australia, and the Countries from whence imported, for the Year 1901—continued.

Articles and Countries whence Imported.	Value.		
	British and Foreign Produce.	Australasian Produce.	Total.
SPOKES, RIMS, AND FELLOES, HICKORY IN THE ROUGH :	£	£	£
United Kingdom	3	...	3
Victoria	20	...	20
South Australia	15	...	15
United States of America	223	...	223
Total	261	...	261
WORKED, N.O.E. :			
United Kingdom	12	...	12
Victoria	273	409	682
South Australia	114	177	291
New South Wales	108	17	125
New Zealand	87	...	87
Singapore	17	...	17
United States of America	1,044	...	1,044
Total	1,655	603	2,258
DRESSED, N.E.I. :			
United Kingdom	11	...	11
Victoria	85	...	85
New Zealand	13	...	13
Germany	268	...	268
United States of America	296	...	296
Sweden	948	...	948
Total	1,621	...	1,621

Articles and Countries whence Imported.	Value.	
	British and Foreign Produce.	Total.
UNDRESSED, N.E.I., IN SIZES OF 12IN. X 6IN. (OR ITS EQUIVALENT) AND OVER :	£	£
Victoria	81	81
New Zealand	889	889
United States of America	7	7
Canada	810	810
Total	1,787	1,787
UNDRESSED, N.E.I., IN SIZES OF 7IN. X 2½IN. (OR ITS EQUIVALENT) AND UPWARDS AND LESS THAN 12IN. X 6IN. :		
Victoria	79	79
New South Wales	8	8
New Zealand	392	392
Canada	634	634
United States of America	39	39
Sweden	9	9
Total	1,161	1,161
UNDRESSED, N.E.I., IN SIZES OF LESS THAN 7IN. X 2½IN. (OR ITS EQUIVALENT) :		
United Kingdom	28	28
Victoria	10	10
New South Wales	21	21
New Zealand	799	799
Canada	132	132
Singapore	205	205
United States of America	17	17
Total	1,212	1,212

A Return showing the Value of Timber imported into Western Australia, and the Countries from whence imported, for the Year 1901—continued.

Articles and Countries whence Imported.	Value.		
	British and Foreign Produce.	Australasian Produce.	Total.
UNWORKED, N.O.E. :	£	£	£
United Kingdom	25	...	25
Victoria	863	924	1,787
South Australia	300	401	701
New South Wales	78	292	370
Queensland ... ..	...	515	515
Tasmania ... ..	...	255	255
New Zealand	4,351	...	4,351
Canada	2,752	...	2,752
Cape Colony	4	...	4
Natal	18	...	18
Singapore	865	...	865
Germany	5	...	5
Sweden	3,043	...	3,043
United States of America	14,176	...	14,176
Total	26,480	2,387	28,867
SPARS :			
Natal	7	...	7
Singapore	5	...	5
Norway	2	...	2
Total	14	...	14
IN BULK, ROUGH OR HEWN :			
United Kingdom	19	...	19
Victoria	37	...	37
South Australia	92	...	92
New Zealand	254	...	254
Canada	436	...	436
United States of America	1,246	...	1,246
Total	2,084	...	2,084
VENEERS :			
United Kingdom	25	...	25
Victoria	32	...	32
United States of America	10	...	10
Total	67	...	67
IN SHORT LENGTHS FOR CASE-MAKING :			
United Kingdom	62	...	62
Victoria	154	1,291	1,445
South Australia	16	573	589
New South Wales	4	226	230
Singapore	394	...	394
Belgium	22	...	22
France	15	...	15
Germany	596	...	596
United States of America	143	...	143
Total	1,406	2,090	3,496
GRAND TOTAL	68,842	5,119	73,961

31. From the foregoing statement it will be seen, therefore, that during the year under review the value of the timber imported into the State amounted to £73,961, as against £53,274 in the preceding year, thus showing an increase of £20,687 during 1901, and again emphasises the advisability of extending our pine plantations year by year.

TIMBER EXPORTS FOR YEAR 1900 AND 1901.

32. The subjoined statement shows the various kinds of timbers exported from this State, the respective quantities of each, their values, and the countries to which same were sent.

EXPORTS OF TIMBER FROM THE STATE OF WESTERN AUSTRALIA FOR THE YEAR 1900.

Species.	Country to which Exported.	Quantity.	Value.
		Loads.	£
Jarrah	United Kingdom	23,148 $\frac{1}{4}$	92,593
	Victoria	376 $\frac{3}{4}$	1,507
	South Australia	10,184 $\frac{3}{8}$	40,739
	New Zealand	43	172
	Singapore	4,226 $\frac{1}{2}$	16,906
	India	882 $\frac{1}{2}$	3,529
	Ceylon	2,294	9,176
	Hongkong	40	160
	Mauritius	811 $\frac{1}{2}$	3,246
	Cape Colony	12,227	48,908
	Natal	5,512 $\frac{3}{4}$	22,051
	Germany	262	1,048
	France	7	28
	Spain	917 $\frac{1}{4}$	3,669
	China	1	4
	Philippines	1,003 $\frac{1}{4}$	4,013
	Uruguay	1,852	7,408
	Argentina	9,273 $\frac{1}{2}$	37,094
Mexico	1,399	5,596	
	Total	74,461 $\frac{5}{8}$	297,847
Karri	United Kingdom	23,717 $\frac{3}{4}$	94,871
	South Australia	372 $\frac{3}{8}$	1,490
	New South Wales	201	804
	India	1,269	5,076
	Ceylon	2,692 $\frac{1}{2}$	10,770
	Cape Colony	5,476 $\frac{1}{10}$	21,904
	Natal	484	1,936
	Germany	1 $\frac{1}{4}$	5
	France	16 $\frac{3}{8}$	66
	Mexico	505 $\frac{1}{2}$	2,022
	Uruguay	1,268	5,072
Argentina	4,041	16,164	
	Total	40,045 $\frac{1}{10}$	160,180
Spars	Guam ... ..	...	317
Tuart	South Australia	1 $\frac{1}{2}$	9
N.O.E.	France ... ..	...	420
	Guam ... ..	...	5
	Total ... ..	...	425
	GRAND TOTAL	114,508	458,778

EXPORT OF TIMBER FROM WESTERN AUSTRALIA DURING YEAR 1901.

Species.	Countries to which Exported.	Quantity.	Value.
Jarrah ...	United Kingdom ...	Loads. 34,146 $\frac{1}{2}$	£ 136,586
	Victoria ...	27 $\frac{1}{4}$	109
	South Australia ...	14,315 $\frac{1}{4}$	57,261
	New South Wales ...	93 $\frac{1}{2}$	374
	New Zealand ...	2,322 $\frac{1}{4}$	9,289
	Singapore ...	1,215 $\frac{1}{4}$	4,861
	Ceylon ...	5,072	20,288
	India ...	6,272 $\frac{1}{2}$	25,090
	Mauritius ...	857 $\frac{1}{2}$	3,430
	Natal ...	14,189	56,756
	Cape Colony ...	13,341 $\frac{1}{4}$	53,365
	Java ...	5	20
	Japan ...	74 $\frac{1}{2}$	298
	Sumatra ...	$\frac{1}{2}$	2
	China ...	984	3,936
	Germany ...	475 $\frac{1}{4}$	1,901
	Holland ...	5	20
Argentina ...	4,947 $\frac{1}{4}$	19,789	
Peru ...	1,200	4,800	
Philippine Islands ...	2,092 $\frac{1}{2}$	8,370	
	Total ...	101,636 $\frac{1}{4}$	406,545
Karri ...	United Kingdom ...	28,578 $\frac{3}{4}$	114,315
	Victoria ...	655 $\frac{1}{2}$	2,622
	South Australia ...	885	3,540
	Ceylon ...	3,962	15,848
	Natal ...	2,287	9,148
	Argentina ...	5,007 $\frac{1}{4}$	20,029
	Total ...	41,375 $\frac{1}{2}$	165,502
	GRAND TOTAL ...	143,011	572,047

33. It will be observed from the preceding statements that the exports of timber during the year 1900 were 114,508 loads, valued at £458,778, as against those for 1901, viz., 143,011 loads, valued at £572,047, showing an increase of £113,269 over the exports for the previous year, and representing an additional export of 28,503 loads.

34. The following tabulated statements show the Sandalwood exports from Western Australia during the years 1900 and 1901, and the countries to which same were sent:—

EXPORT OF SANDALWOOD FROM WESTERN AUSTRALIA FOR THE YEAR 1900.

Species.	Country to which Exported.	Quantity.	Value.
Sandalwood		tons cwt.	£
	Singapore ...	631 5 $\frac{1}{4}$	3,992
	India ...	2 14	27
	Hongkong ...	2,761 2 $\frac{1}{4}$	20,635
	Germany ...	0 2	1
	U.S. of America ...	20 0	160
	China ...	1,679 6 $\frac{3}{4}$	14,233
	Total ...	5,094 10 $\frac{1}{4}$	39,038

EXPORT OF TIMBER FROM WESTERN AUSTRALIA DURING 1901.

Species.	Country to which Exported.	Quantity.		Value.
		tons	cwt.	£
Sandalwood	United States ...	34	9 $\frac{1}{2}$	367
	Singapore ...	1,899	3 $\frac{3}{4}$	15,126
	Hongkong ...	5,848	4 $\frac{1}{4}$	50,468
	China ...	1,076	0	7,905
	Germany ...	5	0	60
	U.S. of America ...	1	0	5
	Total ...	8,863	17 $\frac{1}{2}$	73,931

35. From the above it will be seen that Sandalwood to the amount of 8,863 tons was exported, the value being £73,931.

36. This represents an increase of 3,770 tons on the exports for the year 1900, the corresponding increase in value being £34,893.

37. The greater proportion of the wood was sent away from Fremantle, viz., 5,227 tons; Geraldton coming next with 1,881 tons, and Albany and Carnarvon with 854 and 902 tons respectively.

SECTION VII.

RAILWAY SLEEPERS FOR EXPORT.

38. The following Statement shows the number of sleepers and other timbers passed and branded by the various Inspectors of this Department, and the countries to which same were sent:—

Place of Export.	Sleepers.	Piles.	Beams	Pieces.
Adelaide ...	24,279	...	...	...
Barcelona ...	153	...	...	...
Buenos Ayres ...	19,075	...	...	477
Canada ...	5,176	...	...	...
Cape Town, S.A. ...	113,357	...	...	...
Ceylon ...	93,212	...	...	...
China ...	...	764	1,128	...
Manilla ...	58,091	...	...	2,756
Natal ...	54,837	...	...	1,868
New South Wales ...	9,398	...	...	...
New Zealand ...	100	...	...	...
Singapore ...	35,240	...	...	...
South Australia ...	...	...	...	1,676
Total ...	412,918	764	1,128	6,777

SECTION VIII.

STATE FORESTS.

39. Large areas of forest country are still being set apart throughout the State as Timber Reserves and State Forests, with the view of preventing such country being taken up under Timber Lease, and so as to reserve sufficient forests for the future requirements of the State.

40. Considerable tracts of country on the Warren and Donnelly Rivers, including some of the locally known beauty spots, have also been reserved as national parks, and contain some of the magnificent Karri forests for which these districts are famous.

SECTION IX.

ADVERTISING LOCAL TIMBERS.

41. At the request of the Lancashire and Yorkshire Railway Companies, samples of Banksia and Sheoak were forwarded to its Chief Mechanical Engineer, Manchester, with full particulars as to prices f.o.b. Fremantle, Bunbury, etc., etc.

42. These beautifully figured woods had been seen and greatly admired at the Glasgow Exhibition, and as they were considered highly suited for veneers the Company referred to approached this Department through the Secretary of the Exhibition, Mr. George Aytoun.

43. There being a great want at present for timbers suitable for casks, fermenting vats, fruit cases, butter boxes, etc., samples of light local woods were obtained at the instance of the Agricultural Department for the purpose, and it is intended to have these articles manufactured locally so as to, if possible, initiate a new industry.

44. In consequence of inquiries from Messrs. Seebohm and Dieckstahl, a large Sheffield firm of manufacturers, for woods to take the place of Rosewood and Mahogany in the manufacture of the wooden parts of ratchet braces, samples of Raspberry Jam and Jarrah were sent to above-mentioned firm, with full particulars *re* same, and quotations per load for these woods f.o.b. Western Australian ports.

45. As the use of artificially non-flammable woods has proved unsatisfactory in the construction of British warships, owing to the acids used injuriously affecting the metal fittings, samples of Jarrah, which is comparatively non-flammable timber and uninjurious to metal fittings, were sent to the Agent-General for Western Australia in London, with the request that he would bring this wood and its well known qualities to the notice of the Home Naval Authorities.

46. The Education Department of Victoria having initiated a system of hand and eye training in wood-work, samples of all of our principal timbers were supplied, with full particulars as to their various qualities and uses, and labelled with their botanical and vernacular names.

47. At the request of the Royal Commission of the Glasgow International Exhibition various samples of our timbers, including inlaid panels, were supplied from the Departmental Museum for exhibition purposes in England, and have no doubt done much to advertise our timbers at home.

SECTION X.

THE PLANS.

48. The attached plan, which was prepared for the late Conservator's Report on the Forests of Western Australia, shows in distinctive colours the approximate positions of the various forest areas.

49. On this plan I have had shown, in blue, the country now held under Timber Concession and Timber Lease, from which it will be seen that, although a considerable area has been taken up, a very large area still remains available for selection.

50. Another plan, showing the districts of the various Forest Rangers, is also attached hereto.

SKETCH MAP
of
PART OF SOUTH WEST DIVISION
OF
WESTERN AUSTRALIA

Showing
**APPROXIMATE POSITION OF
TIMBER FORESTS**

To accompany Conservator of Forests Report

COMPILED BY N.J. MOORE



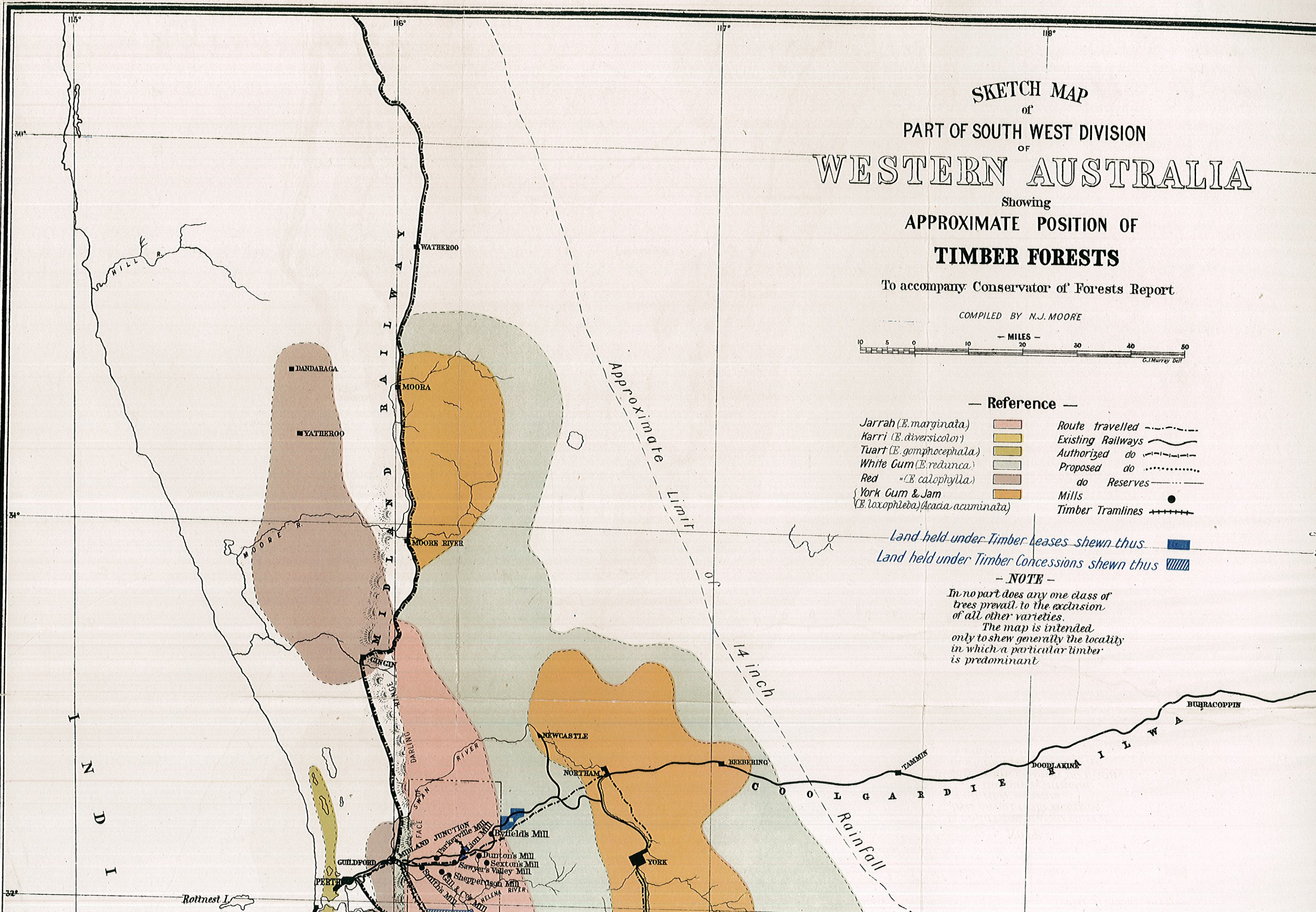
— Reference —

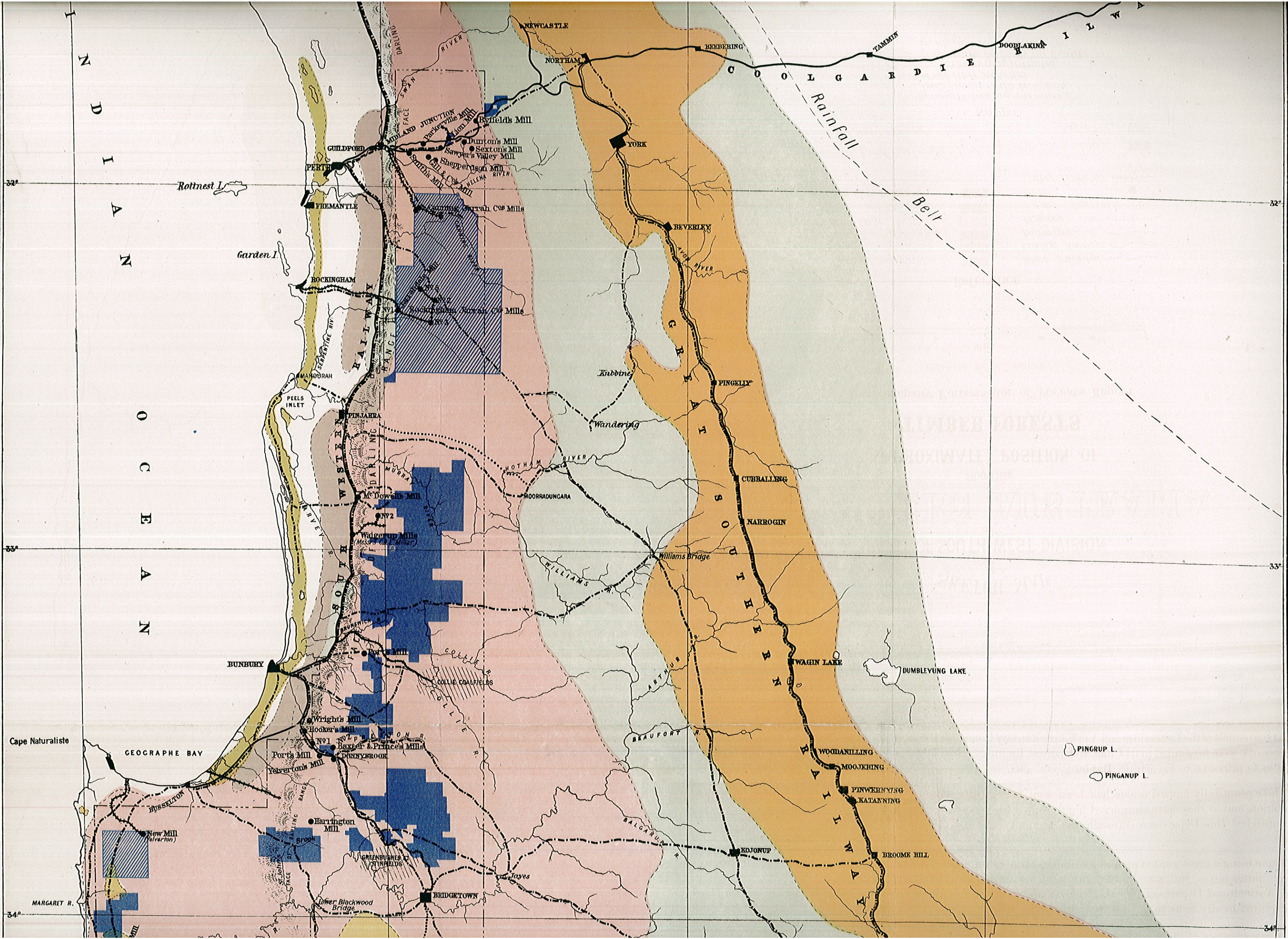
Jarrah (<i>E. marginata</i>)		Route travelled	
Karri (<i>E. diversicolor</i>)		Existing Railways	
Tuart (<i>E. gomphocephala</i>)		Authorized do	
White Gum (<i>E. redunca</i>)		Proposed do	
Red " <i>E. calophylla</i>)		do Reserves	
York Gum & Jam (<i>E. loxophleba</i>) (<i>Acacia acuminata</i>)		Mills	
		Timber Tramlines	

Land held under Timber Leases shewn thus

Land held under Timber Concessions shewn thus

— NOTE —
In no part does any one class of trees prevail to the exclusion of all other varieties.
The map is intended only to shew generally the locality in which a particular timber is predominant





32°

32°

33°

33°

34°

34°

Cape Naturaliste

GEORAPHE BAY

BYSSINGTON

New Mill (Elvarton)

MARGARET R.

Rottneet I.

Garden I.

BUNBURY

Wright's Mill

Hoker's Mill

Baxter & Prince's Mills

Port's Mill

Yelverton's Mill

Harrington Mill

GREENBUSHES

Lower Blackwood Bridge

BRIDGETOWN

FREMANTLE

ROCKINGHAM

MANDURAH

PINJARRA

McDowells Mill

Waigerrup Mills (Messrs E. & L. Miller)

Port's Mill

Wright's Mill

Hoker's Mill

Baxter & Prince's Mills

Port's Mill

Yelverton's Mill

Harrington Mill

GREENBUSHES

Lower Blackwood Bridge

BRIDGETOWN

Lower Blackwood Bridge

BRIDGETOWN

Lower Blackwood Bridge

MIDLAND JUNCTION

Byfield's Mill

Dunton's Mill

Sexton's Mill

Sawyer's Valley Mill

Shepperson Mill

Ell & Co's Mill

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Byfield's Mill

Dunton's Mill

Sexton's Mill

Sawyer's Valley Mill

Shepperson Mill

Ell & Co's Mill

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Byfield's Mill

Dunton's Mill

Sexton's Mill

Sawyer's Valley Mill

Shepperson Mill

Ell & Co's Mill

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Byfield's Mill

Dunton's Mill

Sexton's Mill

Sawyer's Valley Mill

Shepperson Mill

Ell & Co's Mill

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Byfield's Mill

Dunton's Mill

Sexton's Mill

Sawyer's Valley Mill

Shepperson Mill

Ell & Co's Mill

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Byfield's Mill

Dunton's Mill

Sexton's Mill

Sawyer's Valley Mill

Shepperson Mill

Ell & Co's Mill

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

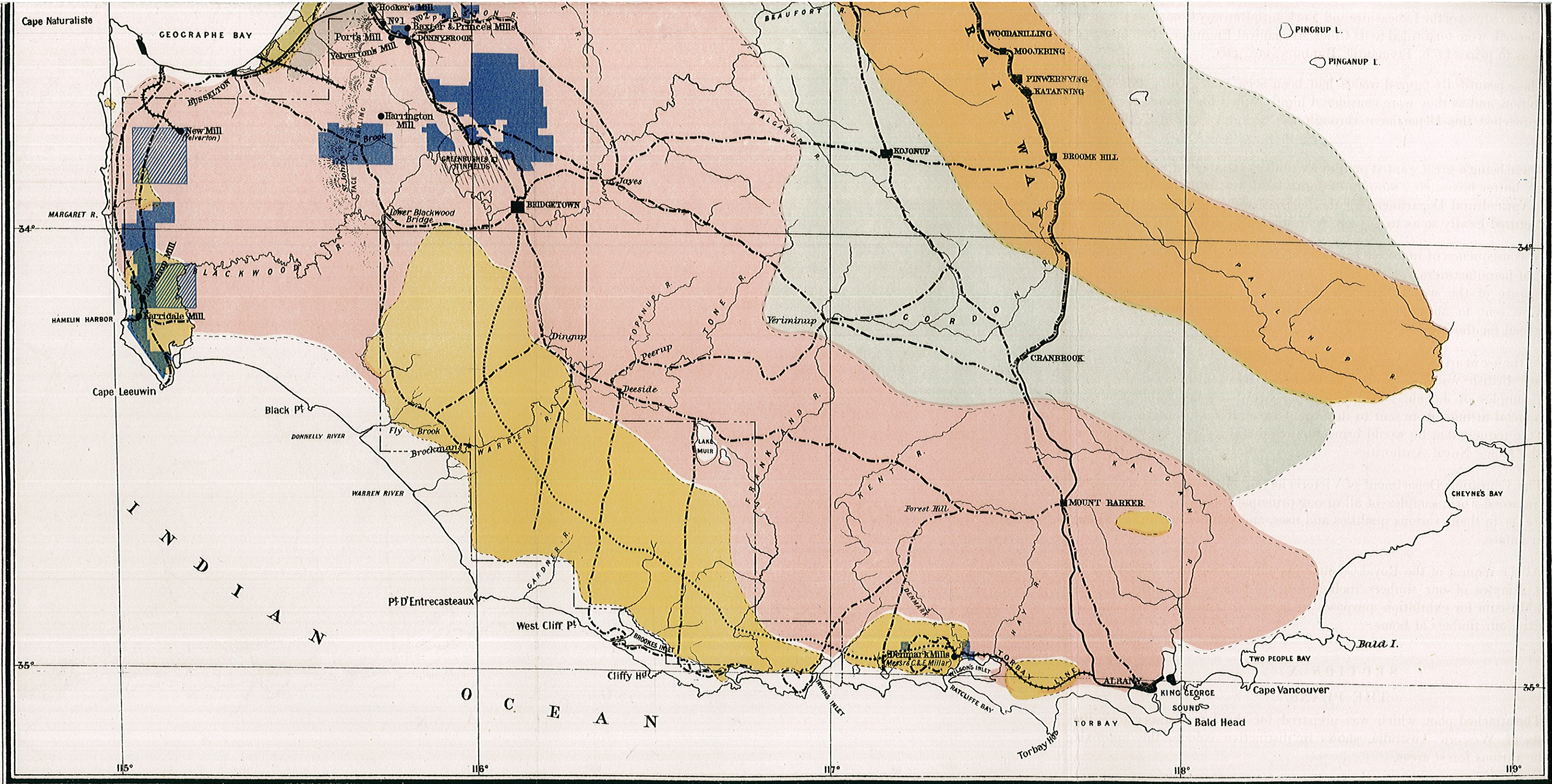
Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

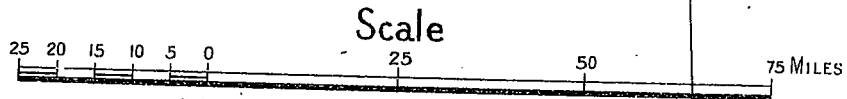
Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills

Rockingham Jarran Co's Mills



PART OF
WESTERN AUSTRALIA
Showing
FOREST RANGERS DISTRICTS



H. J. Pether, Government Photolithographer, Perth, W.A.



PART OF

WESTERN AUSTRALIA

10

4

5

7

YILGARN

NINGHAN

MELBOURNE

GOLDFIELD

VICTORIA

YALGOO

WARRAMBOO

NORTHAMPTON

GERALDTON

SALT LAKE

LAKE BARLEE

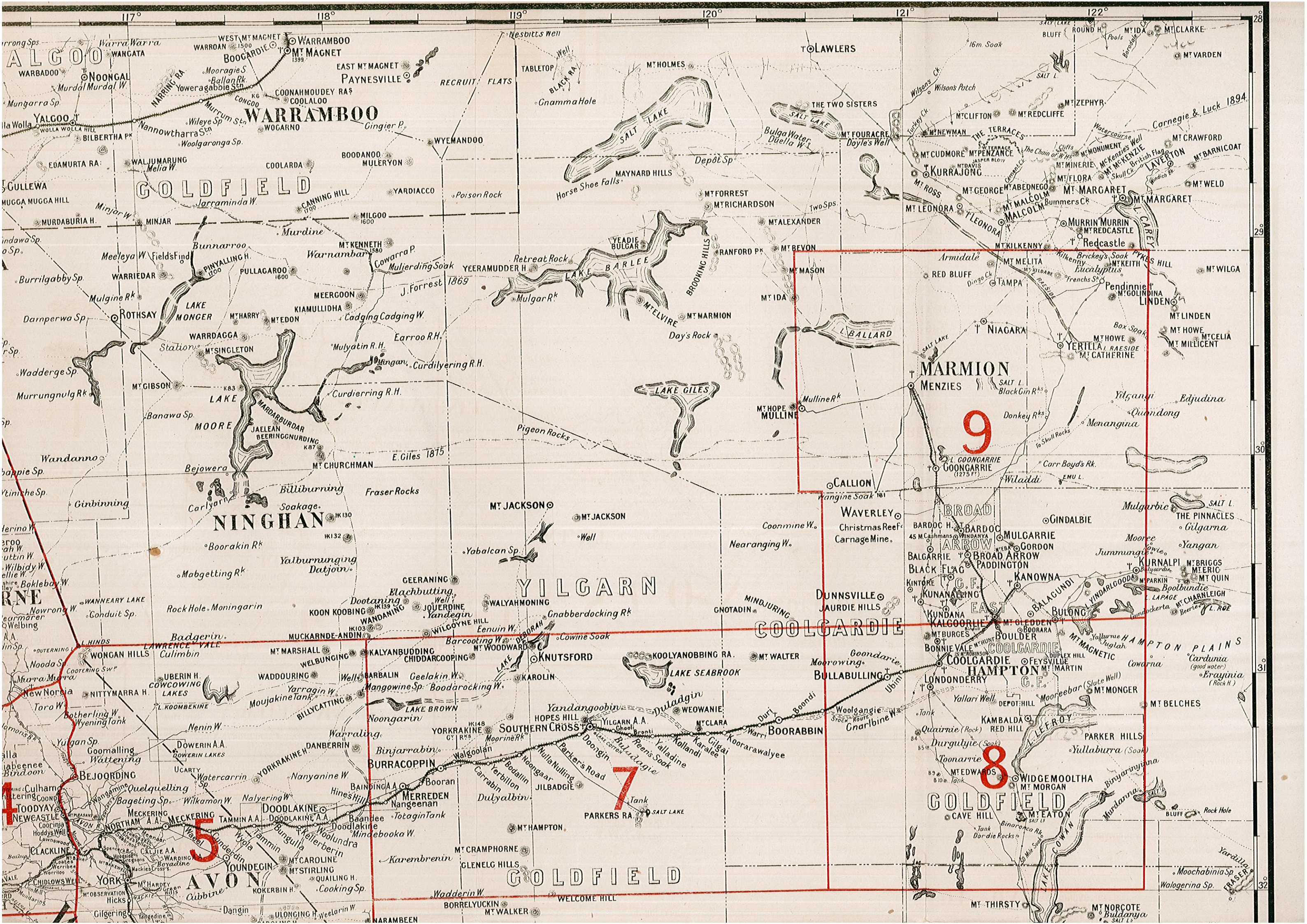
LAKE GILES

KNUTSFORD

BURRACOPP

AVON

GOLDFIELD



117° 118° 119° 120° 121° 122°

GOLDFIELD

NINGHAN

YILGARN

COOLGARDIE

GOLDFIELD

9

8

7

5

AVON

GOLDFIELD

ALGOO

WARRAMBOO

MARMION

MENZIES

WAVERLEY

BROAD ARROW

DUNNSVILLE

BULLABULLING

COOLGARDIE

WIDGEMOOLTHA

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

AVON

AVON

TOODYAY

YORK

AVON

GOLDFIELD

WIDGEMOOLTHA

CAVE HILL

MT THIRSTY

MT NORCOTE

GOLDFIELD

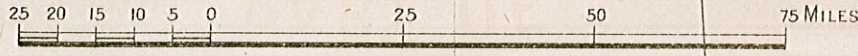
AVON

AVON

PART OF WESTERN AUSTRALIA

Showing FOREST RANGERS DISTRICTS

Scale



H. J. Pether, Government Photolithographer, Perth, W. A.

32
33
34
35

114° 115° 116° 117° 118° 119° 120°





3

2

6

REFERENCE

1	M ^c Forest Ranger Willmott	<i>The Warren (via Balingup)</i>
2	" " "	<i>Brockman Donnybrook</i>
3	" " "	<i>Fitz Gerald Waroona</i>
4	" " "	<i>Patterson Chidlow's Well</i>
5	" " "	<i>Gregory Northam</i>
6	" " "	<i>M^c Vicar Katanning</i>
7	" " "	<i>Day Southern Cross</i>
8	" " "	<i>Kelso Coolgardie</i>
9	" " "	<i>Pennell Menzies</i>
10	" " "	<i>Williams Mingenew</i>

116° 117° 118° 119° 120° 121° 122°