

LAND INVENTORY OF THE LODDON RIVER CATCHMENT

A Reconnaissance survey

N. R. Schoknecht

February 1988

Land Protection Division
Department of Conservation,
Forests and Lands
Victoria

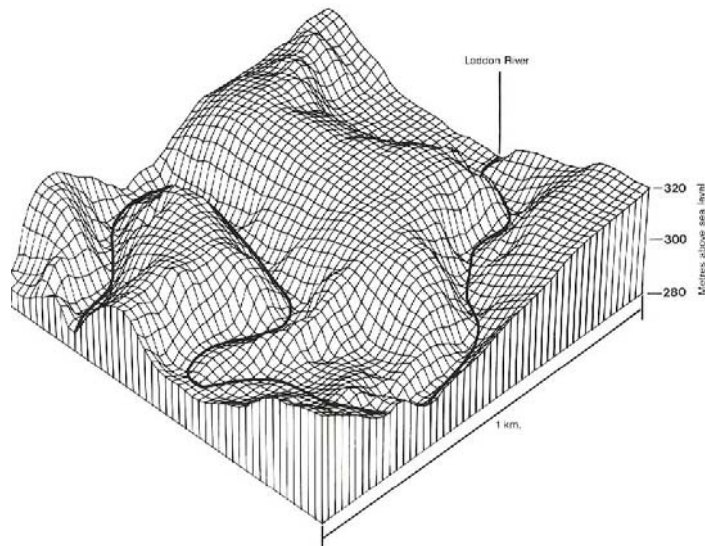
National Soil Conservation Programme
Commonwealth Department of Primary Industry

TABLE OF CONTENTS

FORWARD.....	5
ACKNOWLEDGEMENTS	5
PART A: Features of the land	6
A.1 Introduction	6
A.2 Geology and Physiography.....	8
Landform Patterns	8
Plains – level to gently undulating.....	8
Rises – gently undulating to undulating	9
Low hills to hills – undulating to rolling	9
Volcanic hills.....	9
Enriched valleys	9
Geomorphic processes influencing landform patterns.....	9
Differential erosion.....	9
Drainage modifications.....	10
Faulting.....	11
A.3 Climate	13
Temperature.....	13
Frost.....	13
Rainfall	13
Effect of climate on plant growth.....	13
A.4 Soils	16
Description of the major soil groups	16
Uniform soils.....	16
Coarse Sands	17
Alluvial Soils.....	17
Brown to reddish brown loams.....	17
Yellowish brown stony loams	17
Friable clays.....	17
Cracking clays	18
Gradational soils.....	18
Red gradational soils – basaltic parent materials.....	18
Red or reddish brown gradational soils – sedimentary parent materials.....	18
Yellowish brown to greyish brown gradational soils	18
Dark gradational soils.....	19
Duplex soils.....	19
Yellow duplex soils	19
Red duplex soils	19
Brown duplex soils.....	20
Dark duplex soils.....	20
A.5 Native Vegetation.....	21
The communities	21
A.6 Land Use.....	26
Historical background	26
Present forms of land use.....	26
Forestry.....	26
Native hardwoods	26
Exotic hardwoods	26
Exotic softwoods	26
Agriculture.....	27
Grazing	27
A.7 Land Deterioration.....	30
Forms of deterioration	30
Sheet erosion	30
Susceptibility	30
Incidence	30
Effect and management	30
Gully erosion	31
Susceptibility	31

Incidence	31
Effect and management	31
Streambank erosion	31
Susceptibility and incidence	32
Effect and management	32
Wind erosion	32
Susceptibility	32
Incidence	32
Effect and management	32
Soil compaction	32
Susceptibility	33
Incidence	33
Effect and management	33
Slope failure	33
Susceptibility	33
Incidence	33
Effect and management	33
Soil acidification.....	33
Susceptibility	34
Incidence	34
Effect and management	34
Salting.....	34
Susceptibility and incidence	34
Effect management	35
PART B: The map units	36
B.1 Summary of the Map Units	36
B.2 The Map Units.....	37
Mapping methodology.....	37
2.1 PIA1 PLAINS – level, ALLUVIAL, type 1	39
2.2 PIA2 PLAINS – level, ALLUVIAL, type 2	40
2.3 PIA3 PLAINS – level, ALLUVIAL, type 3	41
2.4 PIA4 PLAINS – level, ALLUVIAL, type 4	42
2.5 PIA5 PLAINS – level, ALLUVIAL, type 5	43
2.6 PIA6 PLAINS – level, ALLUVIAL, type 6	44
2.7 P1B PLAINS – level, BASALTIC	45
2.8 P1/gA PLAINS – level to gently undulating, ALLUVIAL	46
2.9 PgB1 PLAINS – gently undulating, BASALTIC, type 1	47
2.10 PgB2 PLAINS – gently undulating, BASALTIC, type 2	48
2.11 PgB3 PLAINS – gently undulating, BASALTIC, type 3	49
2.12 PgB4 PLAINS – gently undulating, BASALTIC, type 4	51
2.13 PgB5 PLAINS – gently undulating, BASALTIC, type 5	52
2.14 PgG1 PLAINS – gently undulating, GRANITIC, type 1	53
2.15 PgG2 PLAINS – gently undulating, GRANITIC, type 2	54
2.16 PdB PLAINS – Dissected remnants, BASALTIC	55
2.17 RgT RISES – gently undulating, TERTIARY.....	57
2.18 RgC RISES - gently undulating - COLLUVIAL.....	58
2.19 RgB1 RISES – gently undulating, BASALTIC, type 1	59
2.20 RgB2 RISES – gently undulating, BASALTIC, type 2	60
2.21 RgB3 RISES – gently undulating, BASALTIC, type 3	61
2.22 RgG1 – RISES – gently undulating, GRANITIC, type 1	63
2.23 RgG2 RISES – gently undulating, GRANITIC, type 2	64
2.24 RgG3 RISES – gently undulating, GRANITIC, type 3	65
2.25 RgS1 RISES – gently undulating, SEDIMENTARY, type 1	66
2.26 RgS2 RISES – gently undulating, SEDIMENTARY, type 2	67
2.27 Rg/uG1 RISES – gently undulating to undulating, GRANITIC, type 1	68
2.28 Rg/uG2 RISES – gently undulating to undulating, GRANITIC, type 2	69
2.29 Rg/uG3 RISES – gently undulating to undulating, GRANITIC, type 3	70
2.30 Rg/uS1 RISES – gently undulating to undulating, SEDIMENTARY, type 1	71
2.31 Rg/uS2 RISES – gently undulating to undulating, SEDIMENTARY, type 2	73
2.32 Rg/uS3 RISES – gently undulating to undulating, SEDIMENTARY, type 3	74

2.33	RuS RISES – undulating, SEDIMENTARY	76
2.34	R/LuG RISES to LOW HILLS – undulating, GRANITIC	77
2.35	Ru/rS LOW HILLS – undulating to rolling, SEDIMENTARY	79
2.37	LrS1 LOW HILLS – rolling, SEDIMENTARY, type 1	82
2.38	LrS2 LOW HILLS – rolling, SEDIMENTARY, type 2	83
2.39	L/HrG LOW HILLS to HILLS – rolling, GRANITIC	85
2.40	L/HrS LOW HILLS to HILLS – rolling, SEDIMENTARY	86
2.41	HrG1 HILLS – rolling, GRANITIC, type 1	88
2.42	HrG2 HILLS – rolling, GRANITIC, type 2	89
2.43	HrG3 HILLS – rolling, GRANITIC, type 3	90
2.44	HrS1 HILLS – rolling, SEDIMENTARY, type 1	91
2.45	HrS2 HILLS – rolling, SEDIMENTARY, type 2	93
2.46	VB VOLCANIC HILLS, BASALTIC	94
2.47	EB ENTRENCHED VALLEY, BASALTIC	96
B.3	The Maps	97
PART C: DISCUSSION.....		108
Geomorphic processes		110
Weathered parent material		110
Landforms		110
Soil age		111
Land deterioration		111
Land unit complexity		111
Further research		111
PART D: Appendices		112
D.1	References	112
D.2	Structural Forms of Vegetation in Australia	114
D.3	Floristic List	115
D.4	Maps and Aerial Photographs Used	116



A computer generated 3-dimensional view of the terrain along the Loddon River near Vaughan. The flat-topped ridge in the centre of the diagram is a basaltic residual, described in map unit PdB. Dissection around this resistant ridge into the softer sedimentary rocks is marked.

FORWARD

The Loddon river study area contains a wide range of land and soil types, many of which have specific management problems. The survey, conducted at a reconnaissance level, set out to map and describe the biophysical nature of the land, and where possible highlight current and potential land deterioration problems.

This study represents a first approximation only, and is primarily intended to provide a planning and programming document to facilitate subsequent detailed and problem-specific investigations. It also provides an easily understood biophysical data-base for those people interested in the land in the study area.

ACKNOWLEDGEMENTS

The author expresses his appreciation to many member of the Department of Conservation, Forests and Lands, especially Mal Lorimer for his constructive criticism and Frank Gigliotti for preparing the report for publication.

Mrs. Yvonne Roberts was the technical editor.



Basaltic plains near Woodstock, west of Bendigo