

2. CLIMATE

The climate throughout the catchment is characterised by alternating cool wet winters and warm dry summers, often described as Mediterranean. More humid conditions occur to the south on the Dividing Range, whereas the northern plains tend to be semi-arid.

Rainfall

Rainfall data from official weather recording stations (given in Table 1) and a number of private properties within and adjacent to the study area have been used to construct the isohyet map shown in Figure 2. Annual rainfall increased from 450 mm in the north at Rochester to 1,260 mm in the south-west at Newbury. Mount Alexander and the hills forming the south-western catchment boundary produce a significant rainshadow down through the centre of the study area to Woodend.

Most of the precipitation occurs as rain; however, light snowfalls in the south and even on Mount Alexander are not uncommon.

The Great Dividing Range, despite its relatively low elevation, has a major influence on the climate. Rain and cloudy weather occur less frequently north of the Divide than to the south, resulting in a drier, warmer climate throughout the study area.

The seasonal distribution of rainfall follows a similar pattern throughout the catchment, as shown by the graphs of average monthly rainfalls at Trentham, Kyneton, Bendigo and Rochester. The pattern is one of pronounced winter rain and summer drought, with June-August being the wettest months and January-February the driest. In the north where the total rainfall is low, the percentage increase in average monthly rainfall from the three summer months to the winter months is also low, at 18%. By comparison, Woodend and Trentham in the south have large percentage increases in winter rainfall over summer falls – 69% and 111% respectively.

Although total summer rainfall is low, the highest probability of intense storms occurs during the summer period. The rise of warm moisture-laden air – when this is forced up to higher altitudes by cooler low pressure fronts – results in violent electrical storms and high-intensity rainfall. Rochester shows a marked summer-rainfall influence.

Effective Rain

Effective rainfall can be defined as the amount of rain necessary to start germination and to maintain growth; it corresponds to the rainfall in excess of that lost through potential evapotranspiration. One factor determining the length of the growing season is the period when the probability of receiving rainfall greater than the effective amount exceeds 50% - that is, the winter months in the north and the winter plus part of autumn and spring in the south as the shaded area in the following table indicates.

Table 1 – Average monthly and annual rainfall (mm) and number of rain days for selected towns

Station	J	F	M	A	M	J	J	A	S	O	N	D	Year
Bendigo													
Average rainfall	33	34	37	41	54	61	55	57	54	53	38	32	549
No. of rain days	5	4	5	7	10	12	13	13	11	0	7	6	103
*Castlemaine													
Average rainfall	27	38	33	38	54	56	61	62	58	55	40	38	560
No. of rain days	6	5	7	9	13	13	17	17	14	12	9	7	129
Heathcote													
Average rainfall	34	7	39	44	57	62	58	61	55	52	39	36	574
No. of rain days	4	4	5	6	9	10	12	2	10	9	6	5	92
Kyneton													
Average rainfall	37	39	47	54	75	90	82	84	74	69	52	50	753
No. of rain days	5	5	6	9	12	15	16	16	13	11	9	7	124
Rochester													
Average rainfall	30	32	34	31	46	43	45	43	41	44	31	28	448
No. of rain days	4	4	4	6	9	10	12	12	9	8	6	5	89
Trentham													
Average rainfall	53	59	62	80	109	128	126	125	108	98	74	65	1087
No. of rain days	6	6	8	11	14	15	17	16	14	13	10	8	138
Woodend													
Average rainfall	41	47	44	63	81	87	90	92	82	78	56	53	814
No. of rain days	5	5	6	8	11	13	15	15	12	11	8	7	116

* Outside Campaspe River Catchment

Source: Commonwealth Bureau of Meteorology

Table 2 – Percentage frequency of occurrence of rainfall equal to or greater than the effective amount

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Rochester	3	6	12	18	62	80	88	71	46	22	5	1
Bendigo	1	6	12	28	71	86	90	84	64	33	9	5
Heathcote	3	9	16	37	70	86	92	90	70	42	10	4
*Castlemaine	3	8	14	31	66	88	98	88	72	45	17	5
Kyneton	8	10	32	55	88	98	99	96	91	72	28	17

* Outside Campaspe River Catchment

Source: Commonwealth Bureau of Meteorology

Figures in bold type denote those months where plant growth is not restricted by insufficient moisture

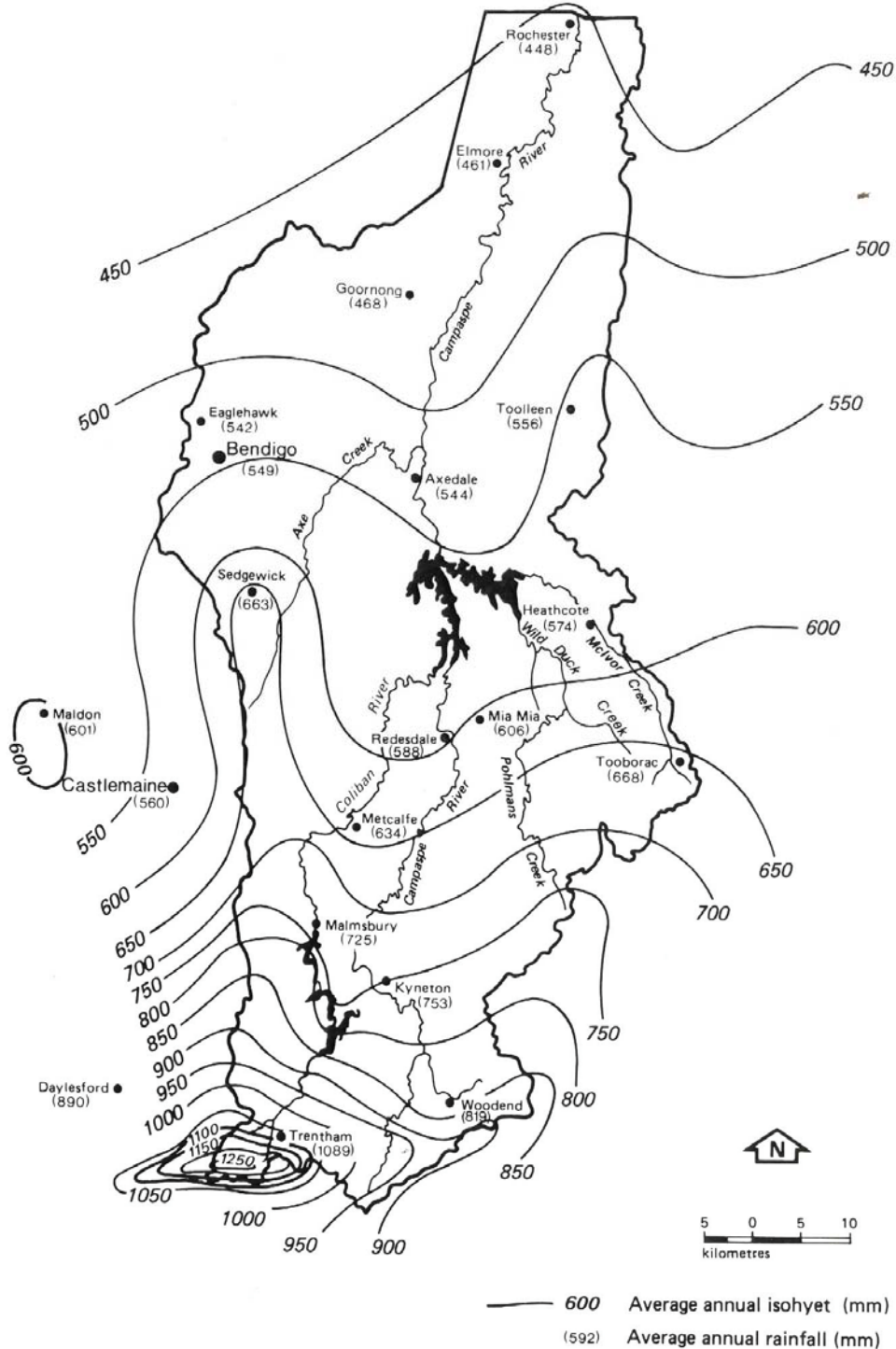


Figure 2 – Isohyet map showing average annual rainfall

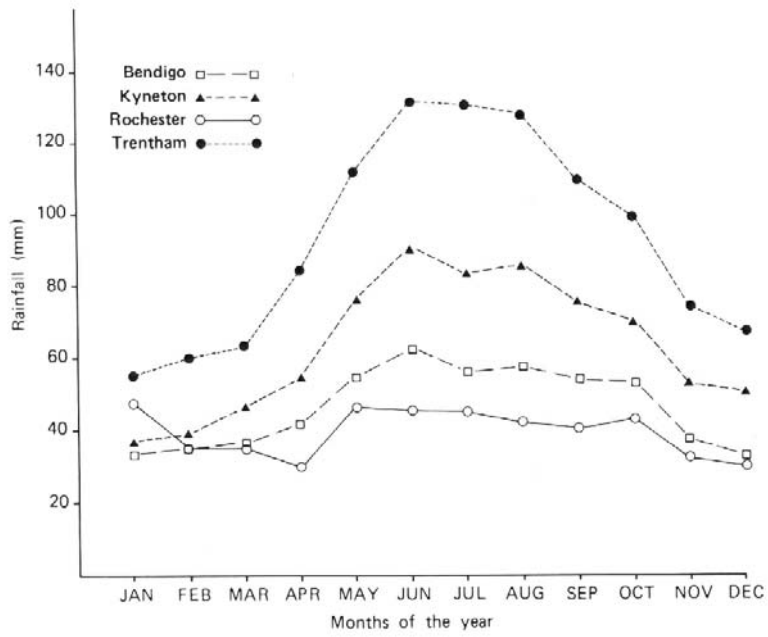


Figure 3 – The average monthly rainfall for selected towns in the Campaspe River Catchment