

## 5.6 Climate

There is insufficient climatic data for the Shire, although information has been taken from Macedon and Woodend weather stations as a guide. Weather stations do not occur in the Shire, with the exception of rainfall records at Lancefield.

### 5.6.1 Rainfall

The only weather station recording mean monthly rainfall in the Shire is located at Lancefield. Stations at Woodend and Macedon are used as a guide to the rainfall for the

south west of the Shire. The south western corner of the Shire has higher rainfalls than the rest of the Shire. The climate in this region is influenced by the Great Dividing Range. Average annual rainfall is around 855 mm, whereas in the north of the Shire, the average annual rainfall is 733 mm. The wettest month is August in the north, whereas high rainfall occurs from June to October in the west (see Table 5.4). The high rainfall in the Shire ensures sufficient moisture in the soil over the summer months.

**Table 5.4 Mean monthly rainfall (mm) and number of rain days**

STATION	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
<b>Lancefield</b>													
Rainfall (mm)	40	43	46	55	69	79	76	81	75	69	52	48	733
Rain Days	6	6	7	10	13	16	17	16	14	13	10	8	136
<b>Macedon</b>													
Rainfall (mm)	47	52	57	68	79	84	85	88	88	85	65	57	855
Rain Days	7	7	9	11	14	15	16	16	14	14	11	9	143
<b>Woodend</b>													
Rainfall (mm)	42	55	46	71	79	79	92	91	79	79	58	57	828
Rain Days	7	7	8	12	14	15	18	18	15	15	11	9	149

### 5.6.2 Temperature

There is not a temperature recording station in the Shire. The nearest station is located at Macedon that can be used as a guide to the general temperatures in the Shire. The warmest month is February with a mean maximum temperature of 25°C.

**Table 5.5 The mean maximum, minimum and average monthly temperatures (°C) for Macedon**

STATION	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Macedon												
Maximum °C	24.3	25.1	21.7	17.6	13.7	10.6	9.9	11.3	13.1	16.7	19.5	22.4
Minimum °C	10.4	11.0	9.3	7.1	5.3	3.2	2.1	2.9	3.7	5.6	7.3	8.6
Average °C	17.4	18.1	15.5	12.3	9.5	6.9	6.0	7.1	8.4	11.2	13.4	15.5

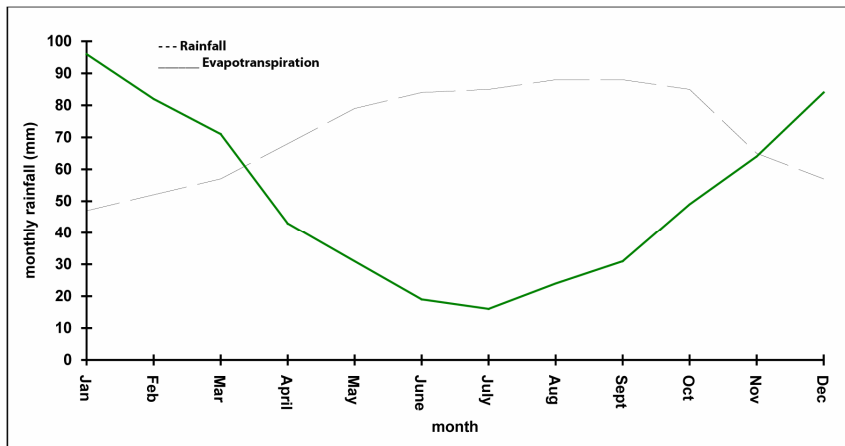


Figure 5.11 Average monthly rainfall and evapotranspiration for Macedon

### 5.6.3 Length of growing season

The length of growing season is determined by combining temperature, rainfall and evapotranspiration information. As temperature drops below 10°C plant growth is restricted (Trumble 1939) and ceases when below 6°C (Martin and Leonard, 1967).

Potential evapotranspiration is an estimate of the amount of moisture that a fully vegetated area can lose by evaporation and transpiration when soil moisture is not limited. There is no evapotranspiration data for the Shire so an approximation has been calculated using Leeper's modification to Thornwaite's formula (Leeper 1950). During summer months from November to March evapotranspiration exceeds rainfall while in winter months from April to October rainfall exceeds evapotranspiration (see Figure 5.10).

The period when rainfall exceeds evapotranspiration, also known as effective rainfall, is an important factor in determining the length of the growing season. Effective rainfall can be defined as the amount of rain necessary to start germination and maintain growth.

Plant growth within the Shire is limited by inadequate soil moisture during summer months and cool temperatures below 10°C during winter months. The length of the growing season has been calculated using the formula below.

$$\text{Length of Growing Season} = 12 \text{ months} - (P+T)$$

Where:

**P** = No. of months where average monthly evapotranspiration > average monthly rainfall

**T** = No. of months where mean monthly temperature < 6°C

$$\begin{aligned} \text{Length of Growing Season} &= 12 - (4+0) \\ &= 8 \text{ months} \end{aligned}$$

The average length of growing season is 8 months. This figure is based upon data obtained from the Macedon recording station. This figure is relevant to the south western corner of the Shire where there are more rain days and higher rainfalls, compared to further north and east of the Shire. The length of growing season is possibly shorter for the rest of the Shire, where the number of months when evapotranspiration is greater than the average monthly rainfall, is greater than 4 months.