

Leaf Scale Measurements - but limited in time

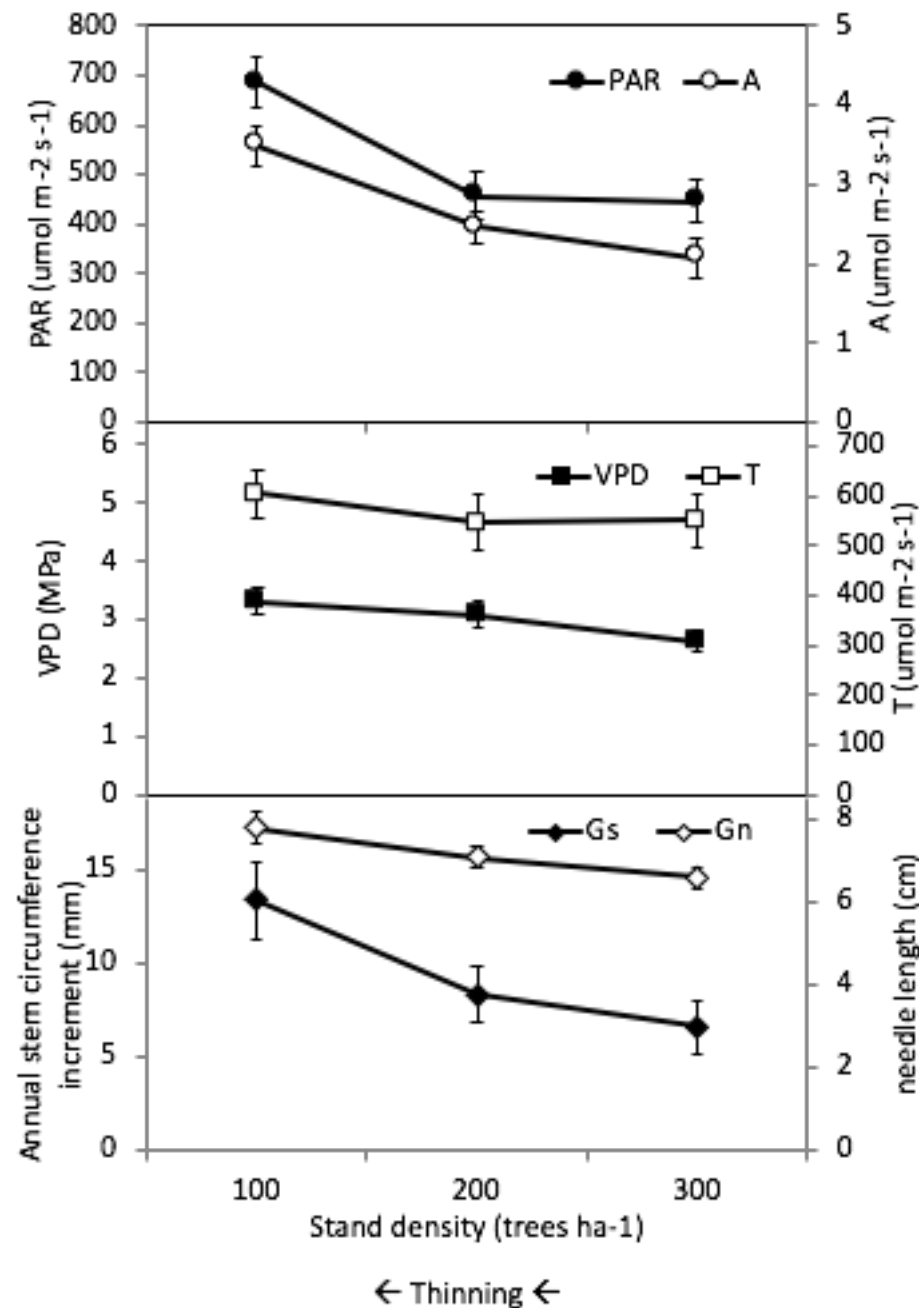


Fig. 2. Stand-density influence on leaf-scale photosynthetically active radiation (PAR) and net assimilation (A), (top); on vapor pressure deficit (VPD) and leaf transpiration (T), (middle); and on stem growth and needle length (bottom) in Yatir forest. Each data-point at top and middle panels is the mean (\pm SE) of 120 observations in 10 field days (2010-2012). Stem growth and needle length data-points are means (\pm SE) of 252 and 84 observations, respectively, in 36 field days (2010-2016).

With density reduction, leaf scale

- PAR increases
- VPD, Transpiration similar
- Assimilation increases

Improved leaf scale water use efficiency - because of increased light

Water amount (mm)

Empirical scaling to estimate water use -
demonstrates compensation of evaporation

WY
E + I
T

400
300
200
100
0

100 t ha⁻¹

200 t ha⁻¹

220 t ha⁻¹

300 t ha⁻¹

Stand density (t ha⁻¹)

← Thinning ←

60

160

70

32

145

112

19

141

129

124

167