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| trait  Table 1. Summary of observed variation in thermally-relevant leaf traits with canopy height and/or between sun and shade leaves | symbol | units | response | forest type(s) | reference(s) |
| leaf mass per area (or inverse of specific leaf area) | *LMA (or 1/SLA)* | g cm-2 | ↑ with height | TeB, TrB, BoN | 1 2 3 4 |
|  |  |  | ↑ with light | TeB, TrB, BoN | 5 6 7 8 |
| leaf density |  | g cm-3 | ↑ with height | TeB | 9 |
|  |  |  | ↑ with light | TeB, TrB | 10, 11 |
|  |  |  | ≈ with light | BoN | 12 |
| leaf area | *LA* | cm2 | ↓ with height | TeB, TrB, BoN | 13, 14, 15, 16 |
|  |  |  | ↓ with light | TrB, TeB, BoN | 17, 18, 19 |
| stomatal density | *Dstomata* | mm-2 | ↑ with height | TrB, TeB, BoN | 20, 21, 22, 23, 24 |
|  |  |  | ↑ with light | TeB, TrB | 25, 26, 27 |
| minor vein density | *VLAmin* | mm mm-2 | ↑ with height | TeB | 28 |
|  |  |  | ↑ with light | TeB | 29 |
| leaf thickness |  | µm | ↑ with height | TrB, TeB, BoN | 30, 31, 32, 33, 34 |
|  |  |  | ↑ with light | TeB, BoN, TrB | 35, 36, 37, 38 |
| trichome density |  | mm-2 | ↑ with height | TrB | 39 |
|  |  |  | ↑ with light | TeB, TrB | 40, 41, 42, 43 |
| blade inclination angle (vertical) | *φB* | ˚ | ↑ with height | TeB, TrB | 44, 45, 46 |
|  |  |  | ↑ with light | TeB, TrB | 47, 48, 49, 50 |
| leaf packing |  | no./cm. stem | ↑ with light | BoN | 51, 52 |
| pinnate lobation |  | cm2 | ↑ with height | TeB | 53 |
|  |  |  | ↓ with height | TeB | 54 |
|  |  |  | ↑ with light | TeB | 55, 56 |
| drip tip length |  | cm | ↓ with height | TrB | 57 |
|  |  |  | ↓ with light | TrB | 58 |
| upper cuticle thickness | *CT* | µm | ↑ with height | TrB, BoN | 59, 60 |
|  |  |  | ↑ with light | TrB, TeB | 61, 62, 63 |
| adaxial leaf wettability (as drop contact angle) | *DCAad* | ˚ | ↑ with height | TeB | 64 |
|  | *duration of surface wetness* | % | ↓ with height | TrB | 65 |
|  | *DCA* | ˚ | ↑ with light | TeB | 66 |
|  |  |  | ↑ with height | TrB, TeB, BoN | 67, 68, 69, 70, 71 |
| nitrogen content | *Na* | g m-2 | ≈↑ with light | TrB, TeB, BoN | 72, 73, 74, 75, 76, 77 |
|  |  |  | ≈↓ with height | TrB, TeB, BoN | 78, 79, 80, 81, 82, 83 |
|  | Nm | mg g-1 | ≈↓ with light | TrB, TeB, BoN | 84, 85, 86, 87, 88, 89 |
|  |  |  | ↑ with height | TrB, TeB, BoN | 90, 91, 92, 93 |
| Phosphorous content | Pa | g m-2 | ↑ with light | TrB, Te, BoN | 94, 95 |
|  |  |  | ≈↓ with height | TrB | 96, 97, 98 |
|  | Pm | mg g-1 | ≈ with light | TrB, TeB | 99, 100, 101 |
|  |  |  | ↑ with height | TrB, TeB | 102, 103, 104 |
| xanthophyll cycle pigments | *VAZ* | µmol m-2 | ↑ with light | TeB, TrB | 105, 106 |
|  |  |  | ↓ with height | TrB, TeB | 107, 108 |
| chlorophyll content | *chl* | mg cm-2 | ↓ with light | TrB, TeB | 109, 110, 111 |
|  |  |  | ↑ with height | TeB, TrB | 112, 113 |
| β-carotene and lutein |  | µmol m-2 | ↑ with light | TeB, TrB | 114, 115 |
|  |  |  | ↑ with height | TeB, TrB | 116, 117, |
| chlorophyll a/b ratio | *chl a/b* | molmol-1 | ↑ with light | TeB, TrB | 118, 119, 120, 121 |
|  |  |  | ↑ with height | BoN, TeB, TrB | 122, 123, 124 |
| carbon isotope composition | *δ13C* | ‰ | ↑ with light | BoN, TeB, TrB | 125, 126, 127 |
|  |  |  | ↓ with height | TeB | 128, 129 |
| Intercellular CO2 concentration | *Ci* | µmolmol-1 | ↓ with light | TeB | 130, 131 |
|  |  |  | ≈ with height | TrB | 132 |
| PAR absorptance | *ABS* | % nm | ≈↑ with light | TrB | 133 |
|  |  |  | ↓ with height | TrB | 134 |
| absorptance efficiency | *ABS* | % g-1 | ↓ with light | TrB | 135 |
|  |  |  | ↓ with height | TrB | 136 |
| PAR transmittance |  | % | ↓ with light | TrB | 137 |
|  |  |  | ≈ with height | TrB | 138 |
| Reflectance |  | % | ≈ with light | TrB | 139 |

**1.** Coble and Cavaleri 2014; **2.** Mau et al. 2018; **3.** Sack et al. 2006; **4.** Chin and Sillett 2019; **5.** Coble and Cavaleri 2014; **6.** Mau et al. 2018; **7.** Sack et al. 2006; **8.** Wyka et al. 2012; **9., 10.** Coble and Cavaleri 2014; **11.** Marques et al. 2000; **12.** Wyka et al. 2012; **13.** Kusi and Karasi 2020; **14.** Cavaleri et al. 2010; **15.** Kenzo et al. 2016; **16.** Gebauer et al. 2015; **17**. Kusi and Karasi, 2020; **18.** Sack et al. 2006; **19.** Gebauer et al. 2015; **20.** Marenco et al. 2017; **21.**Kafuti et al. 2020; **22.** Van Wittenberghe et al. 2012, **23**. Sack et al. 2006, **24.** Chin and Silette 2017; **25.** Sack et al. 2006; **26.** Kafuti et al. 2020; **27.** Marenco et al. 2017; **28,** **29.** Zhang et al. 2019; **30.** Weerasinghe et al. 2014; **31.** Coble and Cavaleri 2014; **32.** Van Wittenberghe et al. 2012; **33.** Oldham et al. 2010; **34.** Marenco et al. 2017; **35.** Coble and Cavaleri 2014; **36.** Wyka et al. 2012; **37.** Marenco et al. 2016; **38.** Weerasinghe et al. 2014; **39.** Ichie et al. 2016; **40.** Gregoriou et al. 2007; **41.** Ichie et al. 2016; **42.** Levizou et al. 2005; **43.** Liakoura 1997; **44.** Niinemets et al. 1998, **45.** Ishida et al. 1998, **46.** Fauset et al. 2018; **47.** Millen and Clendon 1979; **48.** Ishida et al. 1998; **49.** Niinemets et al. 1998; **50.**  Fauset et al. 2018; **51.** Smith and Carter, 1988,

**52**. Hadley and Smith 1987; **53.** Sack et al. 2006; **54.** Kusi and Karasi, 2020; **55.** Kusi and Karasi 2020, **56.** Sack et al. 2006; **57., 58., 59.** Panditharathna et al. 2008; **60.** Chin and Sillett 2019; **61.** Panditharathna et al. 2008; **62.** Marques et al. 2000; **63.** Baltzer and Thomas 2005; **64.** Van Wittenberghe et al. 2012; **65.** Dietz et al. 2007; **66.** Van Wittenberghe et al. 2012; **67.** Kenzo et al. 2015; **68.** Coble et al. 2016; **69.** Scartazza et al. 2016; **70.** Duursma and Marshall, 2006; **71.** Harley et al. 1996; **72.** Weerasinghe et al. 2014;

**73.** Hernandez et al. 2020; **74.** Scartazza et al. 2016; **75.** Coble et al. 2016; **76.** Harley et al. 1996; **77.** Duursma and Marshall, 2006; **78.** Weerasinghe et al. 2014; **79.** Kenzo et al. 2015; **80.** Coble et al. 2016; **81.** Scartazza et al. 2016; **82.** Harley et al. 1996; **83.** Turnbull et al. 2003; **84.** Chen et al. 2020; **85.** Kenzo et al. 2015; **86.**  Coble et al. 2016; **87.** Scartazza et al. 2016; **88.** Harley et al. 1996; **89.** Wyka et al. 2012; **90.** Weerasinghe et al. 2014; **91.** van de Weg et al. 2012; **92.** M.A Cavaleri et al. 2008; **93.** Mau et al. 2018; **94.** Weerasinghe et al. 2014; **95.** Wyka et al. 2012; **96.** Weerasinghe et al. 2014; **97.** Chen et al. 2020; **98.** Mau et al. 2018; **99.** Weerasinghe et al. 2014; **100.** Chen et al. 2020;

**101.** Mau et al. 2018; **102.** Koniger et al. 1995; **103.** Scartazza et al. 2016; **104.** Niinemets et al. 1998; **105.** Scartazza et al. 2016; **106.** Mastubara et al. 2009; **107.** Harris and Medina 2013; **108.** Hansen et al. 2001; **109.** Marques et al. 2000; **110.** Poorter et al. 1995; **111.** Hansen et al. 2001; **112.** Scartazza et al. 2016; **113.** Poorter et al. 1995;

**114.** Scartazza et al. 2016; **115.** Koniger et al. 1995; **116.** Scartazza et al. 2016; **117.** Poorter et al. 1995; **118.** Scartazza et al. 2016; **119.** Poorter et al. 1995; **120.** Matsubara et al. 2009; **121.** Niinemets et al. 1998; **122.** Duursma and Marshall, 2006; **123.** Coble et al. 2017; **124.** Kenzo et al. 2015; **125.** Duursma and Marshall, 2006; **126.** Coble et al. 2016;

**127.** Kenzo et al. 2015; **128.** Scartazza et al. 2016; **129.** Niinemets et al. 2004; **130.** Scartazza et al. 2016; **131.** Niinemets et al. 2004; **132.-139.** Poorter et al. 1995, 2000