

Supplementary Material

Temperature response of CO₂ exchange in three tropical tree species

Martijn Slot^{A,B}, Milton N. Garcia^A and Klaus Winter^A

^ASmithsonian Tropical Research Institute, Apartado 0843-03092, Balboa, Republic of Panama.

^BCorresponding author. Email: martijnslot78@gmail.com

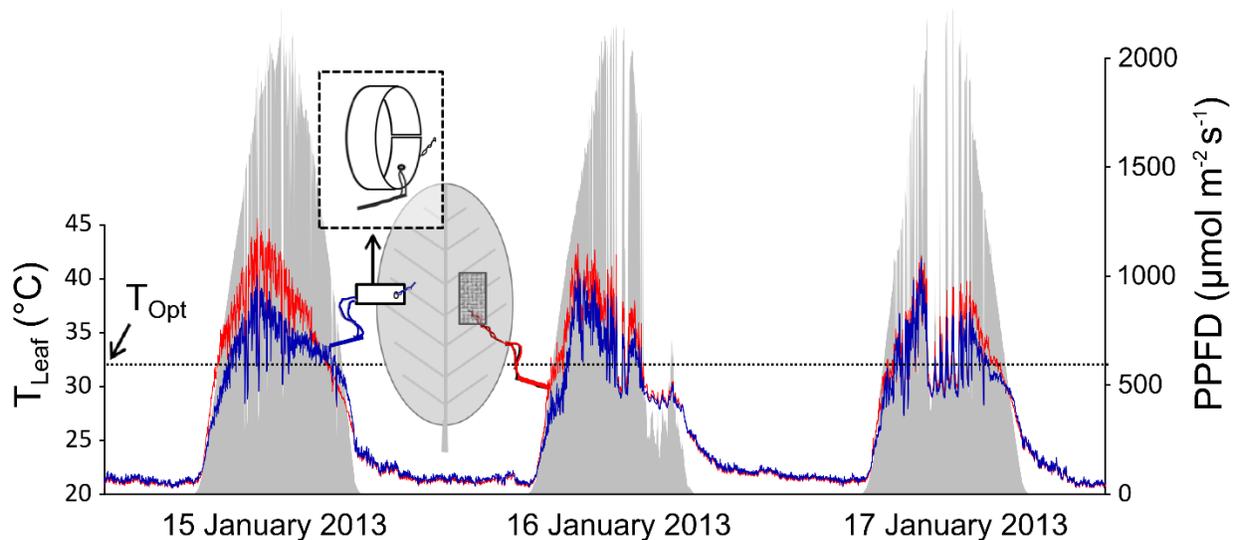


Fig. S1. Illustration of *Ficus insipida* leaf temperatures (T_{Leaf}) measured in the field with a thermocouple wire taped (red line) and clipped (blue line) onto the abaxial leaf surface. Light gray shading represents above-canopy photon flux density (PPFD). The optimum temperature for *in situ* net photosynthesis (T_{Opt}) of *Ficus insipida* leaves is shown by the dotted line. Three consecutive days in mid-January 2013 are shown for one representative leaf, each with a different light regime. Similar data were obtained for five other leaves studied simultaneously.

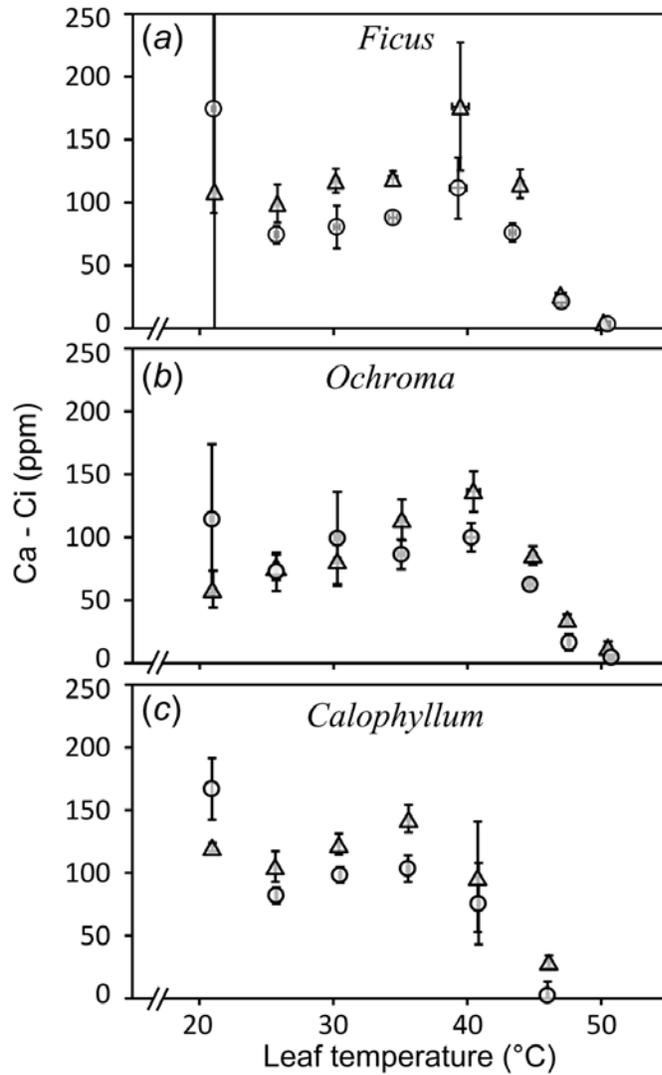


Fig. S2. Drawdown of CO₂ from ambient air to intercellular airspace (Ca - Ci) in relation to leaf temperature in *Ficus insipida* (a), *Ochroma pyramidale* (b), and *Calophyllum longifolium* (c) seedlings (mean ± SEM; n=4-6). Measurements were made at 21% (open circles) and ~2% oxygen (triangles).

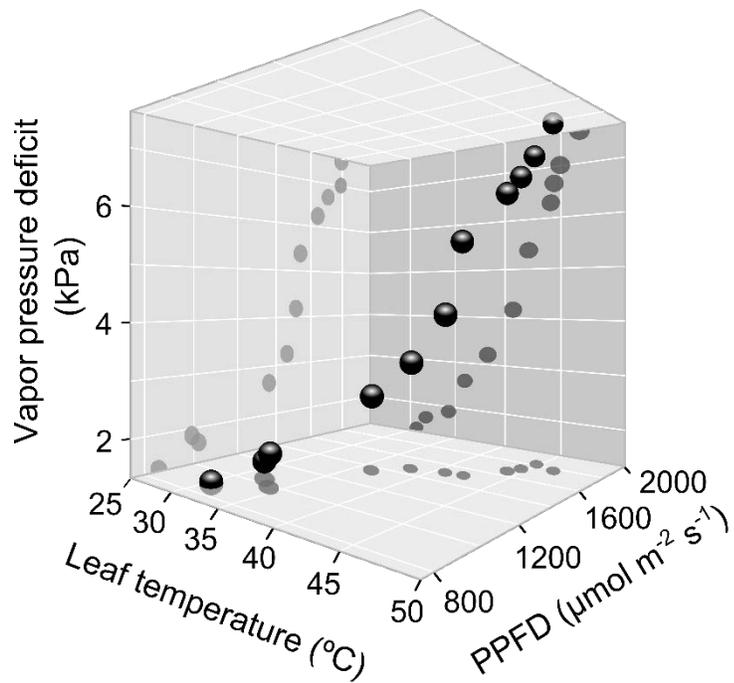


Fig. S3. Illustration of the close correlations among leaf temperature, incident irradiance at the leaf surface (PPFD), and leaf-to-air vapor pressure deficit conditions during *in situ* measurements of net photosynthesis of *Ficus insipida* leaves. Six leaves were measured 11 times on 15 January 2013, early in the dry season when irradiance level is high. Shown are the mean conditions of the 6 leaves at each measurement period.

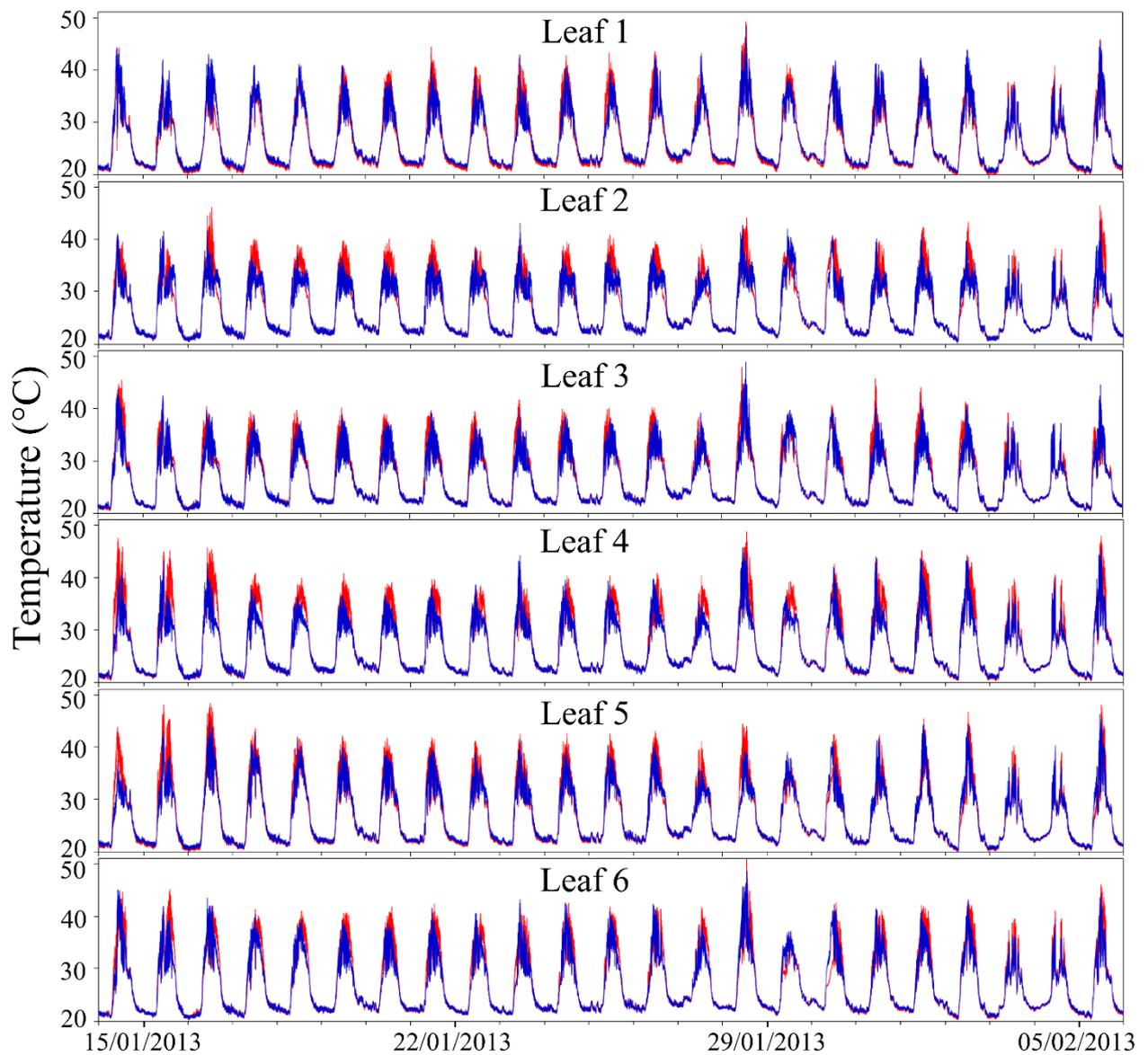


Fig. S4. Leaf temperature recorded for 6 upper canopy leaves of *Ficus insipida* measured with thermocouple wires clipped (blue lines) and taped (red) to the leaves, illustrating the frequent occurrence of very high temperatures, up to 50°C in some leaves on 28 January. Measurements were taken in the early dry season, when solar radiation levels were high.