Metadata for temperature data recorded at Lopé NP Gabon (1984-2018)

Maximum and minimum daily temperatures have been recorded at Lopé using six different pieces of equipment at two sites (a savanna site: 11.605E, -0.201N and a forest site: 11.605E, -0.206N) from 1984 to the present .

A manual max/min thermometer was located at the forest site (1.5m aboveground under closed canopy), from 1984 and was checked whenever field teams passed it or daily when logistics permitted. The thermometer recorded the highest and lowest temperature since last reset and data was recorded at irregular intervals. In the case of multi-day intervals between data observations it is impossible to know which date temperature extremes occurred on. We assigned the recorded observations to the mid-date between the current and previous observations for all multiday intervals outside of three major breaks where the equipment was out of use: 1998/07 - 1999/01, 2001/03 - 2001/08 and 2001/08 - 2006/06. In 2002 all temperature recording at the forest site was transferred to continuous automatic units (ONSET HOBO® Data Loggers refhttps://www.onsetcomp.com/, these units also recorded relative humidity). At the same time temperature recording using the same units also began at the savanna site. Due to technical failures these units were replaced in 2006 with the original manual max/min thermometer in the forest and a digital max/min thermometer (Taylor 1441) in the savanna. The digital max/min thermometer detected the highest and lowest temperatures of the previous 24hrs (usually recorded between 8 and 9am). The thermometers were once again replaced by another type of automated unit (TinyTag Plus 2, Gemini Data Loggers https://www.geminidataloggers.com/data-loggers/tinytag-plus-2, some of which recorded both temperature and relative humidity), deployed in the forest from 2007 and in the savanna from 2008 and used until the present (with a gap at the forest site from mid-2015 to mid-2016 and intermittent recording throughout 2017 partly due to termite infestation).

Two weather stations - a Davis VantagePro2 (https://www.davisinstruments.com/solution/vantage-pro2/) and a SKYE MINIMET weather station (https://www.skyeinstruments.com/minimet-automatic-weather-station/) - were installed at the savanna site (sited near the research station, on a rock 4m from the ground) between 2012 and 2016. The VantagePro recorded data every 30 minutes for two years until the equipment was struck by lightning in January 2014. The SKYE station was installed in 2013 and collected data intermittently until 2016 when the equipment was also damaged by lightning: data records between January 2014 and November 2014 were also lost

The automatic units and weather stations collected data in intervals up to 30 minutes long. We summarised these data by calculating the minimum and

maximum daily temperature for each 24hr period from 8am-8am to match the thermometer data (Figure 1).

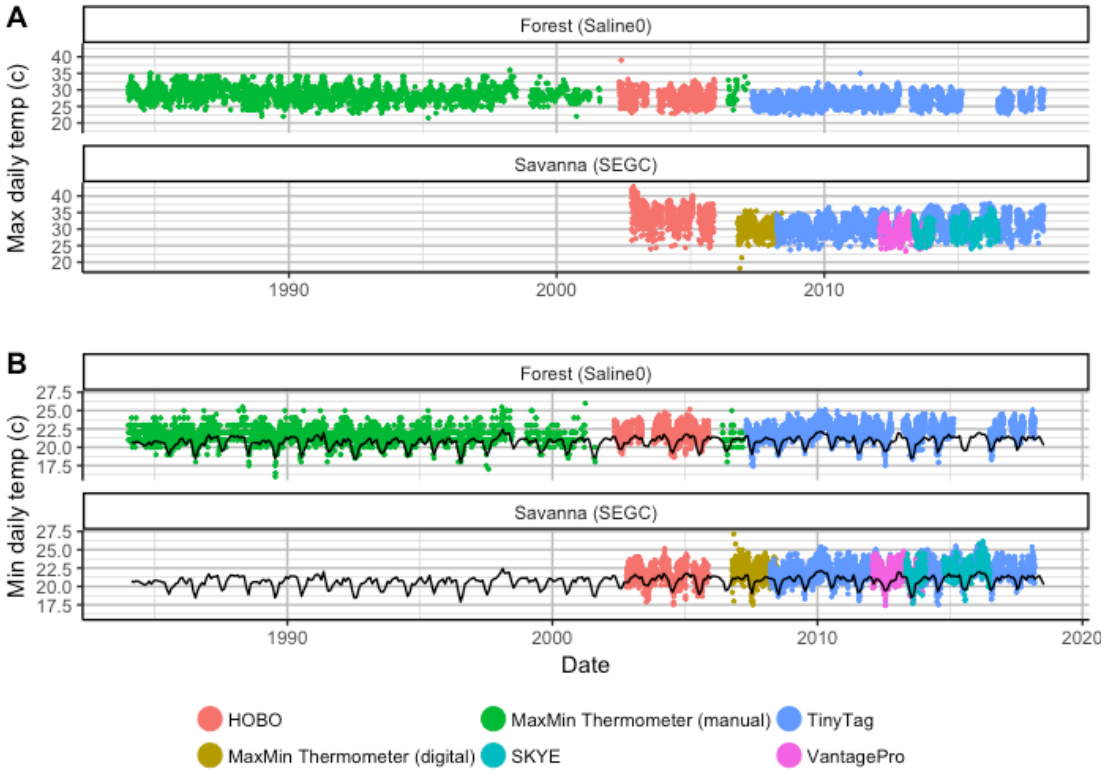

Figure 1. Time series plots of maximum (A) and minimum (B) daily temperature observations at Lopé NP, 1984-2018. *Coloured dots show the original mean daily observations from different equipment. The black line shows monthly mean minimum daily temperature from the Berkeley dataset.*

We combined the continuous data with the manual and digital thermometer data to form the accompanying daily maximum and minimum temperature record (Temperature daily Dataset C in accompanying manuscript).