**ReadMe for “Read climate data.R”**

The following ReadMe gives a brief overview of how to use “Read climate data.R”. Please first consult “ReadME download recent climate data.docx” and “ReadME download recent climate data.docx” and confirm that “Recent Tmax <location>.nc”, “Recent Tmin <location>.nc”, “Future Tmax <location>.nc”, “Future Tmin <location>.nc” exist in the “Climate data” folder. ***Please note that running this script is not strictly necessary for the populations in the manuscript as all climate data already exists in the “Climate data” folder.***

**Input:** User-defined location for climate data (from “Climate station data.xlsx”)

**Output:** CSV files of recent and future climates, starting with the first day for which there is climate data in “Recent climate data <location>.csv” and day 0 (Jan 1, 2025; see “time” column) in “Future climate data <location>.csv”.

**To run:**

1. Update variable *location* (line 17) with the location name from “Climate station data.xlsx”
2. To save climate files (over any existing files), change “save” from FALSE to TRUE in line 20
3. To remove climate netCDF data files, change “remove” from FALSE to TRUE in line 23
4. Run the script

**Potential issues:**

* The script only works if the working directory (see line 11) is in the main folder of the downloaded GitHub repo
* The variable *loc* (line 17) must exist within “Climate station data.xlsx” and match the “Location” column exactly
* The NC files for recent and future climates must have been previously downloaded and exist within “Climate data” folder of the downloaded GitHub repo (see “ReadMe download recent climate data.docx” and “ReadMe Python download future climate data.docx”)

**Script details:**

Lines 5-14 Load required packages, set working directory, and read “Climate station data.xlsx”

Lines 16-23 Have user enter required information

Lines 25-34 Find information for selected species in “Climate station data.xlsx”

Lines 36-39 Assign first day for which climate data exists in recent climate

Lines 42-76 Download and process recent climate data

Lines 42-58 Open netCDF files for recent climate data and extract data

Lines 60-68 Enter climate data into R data frame, remove NAs, and save data (if desired)

Lines 70-76 Close and remove (if desired) netCDF files

Lines 79-114 Download and process future climate data

Lines 80-84 Open CSV files for future climate data and extract data

Lines 86-108 Enter climate data into R data frame, remove NAs, and save data (if desired)

Lines 110-114 Close and remove (if desired) netCDF files