function(){

# MyGopherusFunction()

# Outputs files with interim results needed for extinction calcs

# written for REU workshop by Sinervo

GopherusTb <<- read.table(file="GopherusTb.csv",sep=',',header=T)

zz <- file("outputGopherusTb.csv","w+") # kills the output file

close(zz)

zz <- file("outputGopherusTb.csv","a") # now open it to append

cat(file=zz,"Lat",',',"Lon",',',"Tb",

',',"Tmax\_1975\_May",',',"Tmax\_1975\_Jun",',',"Tmax\_1975\_Jul",

',',"Tmax\_2080\_May",',',"Tmax\_2080\_Jun",',',"Tmax\_2080\_Jul",

',',"Tmax\_1975\_MJJ\_avg",',',"Tmax\_2080\_MJJ\_avg",'\n')

resolution <- 10/60 # 10 arc minutes files from WorldClim.org

print(length(GopherusTb$Lat)) # how many records were read in, is output to console

for(i in 1: length(GopherusTb$Lat)){

if(GopherusTb$Lat[i]>0){ # only takes records above the equator! just a quick test

r <- as.integer((90-GopherusTb$Lat[i])/resolution)+1

c <- as.integer((GopherusTb$Lon[i]+180)/resolution)+1

cat(file=zz,

GopherusTb$Lat[i],',',GopherusTb$Lon[i],',',GopherusTb$Tb[i],',',

tmax\_1975\_05.10m[r,c],',',tmax\_1975\_06.10m[r,c],',',tmax\_1975\_07.10m[r,c],',',

tmax\_2080\_05.10m[r,c],',',tmax\_2080\_06.10m[r,c],',',tmax\_2080\_07.10m[r,c],',',

(tmax\_1975\_05.10m[r,c]+tmax\_1975\_06.10m[r,c]+tmax\_1975\_07.10m[r,c])/30,',',

(tmax\_2080\_05.10m[r,c]+tmax\_2080\_06.10m[r,c]+tmax\_2080\_07.10m[r,c])/30,'\n')

# why divide by 30? because .bil files are long integers but they need to be

# converted to decimal results, read the readme in worldclim.org

# this cat correctly makes a comma delimited file with

# Lat, Lon, and Average summer Temp in 1975 as output

}

else {} # Nothing (data are erroneously below the equator)

}

close(zz)

}