

```
#####
##### Object:  integrate BTCC@30m with TNT@6m to produce tree cover % @ 30m
##### Author:  remi.dannunzio@fao.org
##### Update:  2017/04/30
#####
```

```
#####
##### LOAD PACKAGES AND OPTIONS, SET WORKING DIRECTORY
#####
start <- Sys.time()
```

```
library(ggplot2)
library(agricolae)
library(foreign)
library(reshape2)
```

```
options(stringsAsFactors = F)
```

```
#####
#### Setup to your local working environment
rootdir <- "/media/dannunzio/Transcend/integration/"
setwd(rootdir)
```

```
#####
#### List of DBF
dbf_list <- list.files(path = "Table/",pattern=glob2rx("btc*.dbf"))
```

```
for(i in 1:length(dbf_list)){
  print(file)
  file <- dbf_list[i]
  tmp <- read.dbf(paste0("Table/",file))
  names(tmp) <- c("OBJECTID","COUNT","AREA",substr(basename(file),5,nchar(basename(file))-8))

  if(i==1){
    btc <- tmp
  }else{
    btc <- cbind(btc,tmp[,4])
    names(btc)[i+3]<-substr(basename(file),5,nchar(basename(file))-8)
  }
}
```

```
names(btc)
```

```
df <- read.dbf(paste0("Table/LC_2015_BTM.dbf"))
```

```
poly_miss <- df[!(df$OBJECTID %in% btc$OBJECTID),]
```

```
head(poly_miss)
table(poly_miss$DIVNAME)
summary(poly_miss)
length(btc[!(btc$OBJECTID %in% df$OBJECTID),]$OBJECTID)
```

```
df1 <- merge(df,btc,by.x="OBJECTID",by.y="OBJECTID",all.x=TRUE)
df1[is.na(df1)] <- 0
```

```
head(df1)
summary(df1)
```

```
df1$ptc_2000 <- df1$stc2000 / df1$COUNT *100
df1$ptc_2015 <- (df1$stc2000 - rowSums(df1[,grep(names(df1),pattern = "loss_")]) + df1$gain) / df1$COUNT
df1[is.na(df1)] <- 0
```

```
names(df1)
```

```
##### MOLTEN THE DATA
```

```
df_plot <- melt(df1[,c("CODE","DISTNAME","ptc_2000","ptc_2015")],
  id.vars=c("CODE","DISTNAME"),
  variable.name='year',
  value.name="pct"
```

```

)

df_plot$DISTNAME <- as.character(df_plot$DISTNAME)
district <- unique(df_plot$DISTNAME)[1]

for(district in unique(df_plot$DISTNAME)){
  df_dist <- df_plot[df_plot$DISTNAME==district,]

  png(filename=paste0("graph/", "graph_", district, ".png"), width=1400, height=500)

  (random_palette <- sample(colors(), 2))
  (hex_palette <- paste0("#",
                        format(as.hexmode(col2rgb(random_palette)[1,]), width = 2),
                        format(as.hexmode(col2rgb(random_palette)[2,]), width = 2),
                        format(as.hexmode(col2rgb(random_palette)[3,]), width = 2))
  )

  print(
    ggplot(df_dist, aes(CODE, pct, fill=year)) +
    stat_summary(fun.y="mean", geom="bar",
                position = position_dodge(0.9)) +
    #stat_summary(fun.data = mean_sdl, geom = "errorbar") +
    labs(x = "",
         y = "% Tree Cover",
         title = paste0("Average tree cover percentage per class, ", district)) +
    #theme(axis.text.x = element_text(angle=90, vjust=0.5, size=8)) +
    scale_fill_manual(name = "Year", values=c("#009E73", "#0072B2")) +
    scale_y_continuous(limits = c(0, 90))
  )
  dev.off()
}

dbf <- arrange(df1, OBJECTID)

write.dbf(dbf, "LC_2015_BTM_tc.dbf")
# BLUE AND GREEN c("#009E73", "#0072B2")
# 2 GREYS       c("#333333", "#999999")
# random colors : hex_palette

# ##### Some color examples to pick from
# (random_palette <- sample(colors(), 2))
# (hex_palette <- paste0("#",
#                       format(as.hexmode(col2rgb(random_palette)[1,]), width = 2),
#                       format(as.hexmode(col2rgb(random_palette)[2,]), width = 2),
#                       format(as.hexmode(col2rgb(random_palette)[3,]), width = 2))
# )

Sys.time()-start

```