

Moscas Manova

Matheus

6 de novembro de 2017

Moscas

Pacotes

```
source("funcoes.R")
pacotes <- c("ggplot2",
             "magrittr",
             "gridExtra",
             "xtable",
             "dplyr",
             "purrr",
             "tidyr")

ipak(pacotes)

## Loading required package: ggplot2
## Loading required package: magrittr
## Loading required package: gridExtra
## Loading required package: xtable
## Loading required package: dplyr
##
## Attaching package: 'dplyr'
## The following object is masked from 'package:gridExtra':
##
##      combine
## The following objects are masked from 'package:stats':
##
##      filter, lag
## The following objects are masked from 'package:base':
##
##      intersect, setdiff, setequal, union
## Loading required package: purrr
##
## Attaching package: 'purrr'
## The following objects are masked from 'package:dplyr':
##
##      contains, order_by
## The following object is masked from 'package:magrittr':
##
##      set_names
```

```
## Loading required package: tidyr
##
## Attaching package: 'tidyr'
## The following object is masked from 'package:magrittr':
##
##      extract
##
##      ggplot2  magrittr  gridExtra    xtable      dplyr      purrr      tidyr
##          TRUE      TRUE      TRUE      TRUE      TRUE      TRUE      TRUE
options(xtable.comment = FALSE)
```

Lendo Os Dados

```
dados <- read.table("Dados/Moscas.txt")

nomes_C01 <- c("Especie" = "Especie",
               "CompAsa" = "Comprimento da asa",
               "LargAsa" = "Largura da asa",
               "Comp3Palpo" = "Comprimento do terceiro palpo",
               "Larg3Palpo" = "Largura do terceiro palpo",
               "Comp4Palpo" = "Comprimento do quarto palpo",
               "Comp12Antena" =
               "Comprimento do 12ºsegmento\n da antena",
               "Comp13Antena" = "Comprimento do 13ºsegmento\n da antena")

colnames(dados) <- c("Especie", "CompAsa", "LargAsa", "Comp3Palpo", "Larg3Palpo", "Comp4Palpo", "Comp12Antena", "Comp13Antena")

Especie_chr <- function(x){
  if (x == 0)
    y <- "torrens"
  else
    y <- "carteri"
}

dados %<>% mutate( Especie_fct =
                  factor(map_chr(Especie, Especie_chr)))
```

Análise Descritiva

Medidas Descritivas

```
descritivas <-
dados %>% select_if(.predicate = is.integer) %>%
  gather(Coluna, valores, -Especie) %>%
  group_by(Coluna, Especie) %>%
  summarise_if(.predicate = function(x) is.numeric(x),
               .funs = c(Media = "mean",
                           DP = "sd",
```

```

      Var. = "var",
      Minimo = "min",
      CV = "cv",
      Mediana = "median",
      Maximo = "max")) %>%
mutate_if(.predicate = is.numeric, funs(round(.,3))) %>%
mutate(Especie = factor(map_chr(Especie, Especie_chr)))

descritivas_2 <- nest(descritivas)

for(i in 1:7){
  print(xtable(descritivas_2$data[[i]],
    caption = nomes_COL[descritivas_2$Coluna[i]] ))
}

```

	Especie	Media	DP	Var.	Minimo	CV	Mediana	Maximo
1	torrens	9.57	0.92	0.84	8.00	9.58	9.00	13.00
2	carteri	9.66	1.26	1.58	6.00	13.04	10.00	12.00

Table 1: Comprimento do 12ºsegmento da antena

	Especie	Media	DP	Var.	Minimo	CV	Mediana	Maximo
1	torrens	9.71	0.89	0.80	8.00	9.20	10.00	13.00
2	carteri	9.37	1.09	1.18	7.00	11.60	9.00	11.00

Table 2: Comprimento do 13ºsegmento da antena

	Especie	Media	DP	Var.	Minimo	CV	Mediana	Maximo
1	torrens	35.37	2.20	4.83	31.00	6.21	36.00	39.00
2	carteri	39.31	2.84	8.04	33.00	7.21	39.00	44.00

Table 3: Comprimento do terceiro palpo

	Especie	Media	DP	Var.	Minimo	CV	Mediana	Maximo
1	torrens	25.63	2.50	6.24	21.00	9.75	26.00	31.00
2	carteri	30.00	4.62	21.29	20.00	15.38	31.00	38.00

Table 4: Comprimento do quarto palpo

	Especie	Media	DP	Var.	Minimo	CV	Mediana	Maximo
1	torrens	96.46	6.38	40.73	85.00	6.62	95.00	109.00
2	carteri	99.34	5.59	31.29	82.00	5.63	99.00	112.00

Table 5: Comprimento da asa

Boxplots

```
##criando funcao para facilitar a criação dos boxplots
boxplots_moscas <- function(coluna){
  qplot(dados$Especie_fct,coluna,geom = "boxplot") + labs(x = "Espécie") + theme_bw()
}

graficos <- apply(dados[,2:8],2,boxplots_moscas)

for(i in 1:7)
  graficos[[i]] <- graficos[[i]] + labs(y = nomes_C01[i + 1])

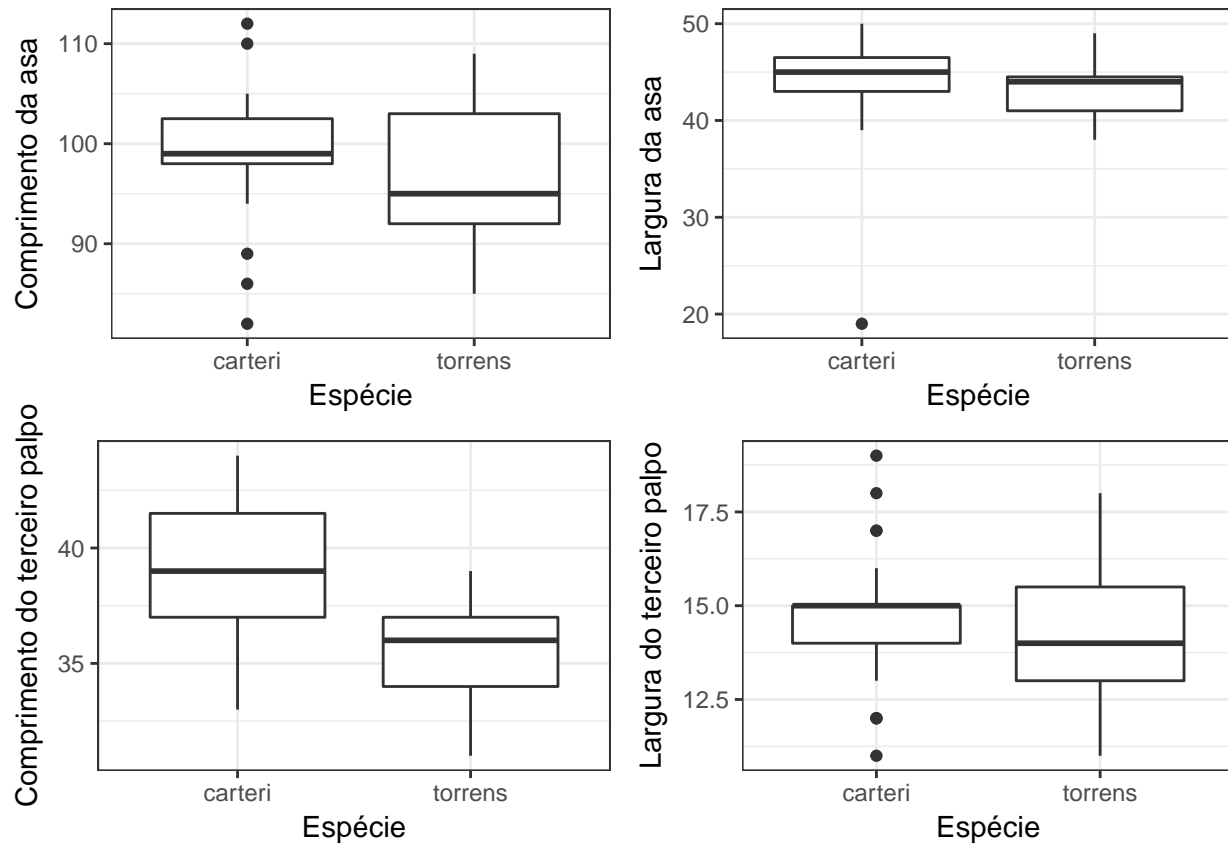
##print os boxplots
grid.arrange(graficos[[1]], graficos[[2]],
             graficos[[3]], graficos[[4]])
```

	Especie	Media	DP	Var.	Minimo	CV	Mediana	Maximo
1	torrens	14.51	1.84	3.38	11.00	12.66	14.00	18.00
2	carteri	14.66	1.64	2.70	11.00	11.22	15.00	19.00

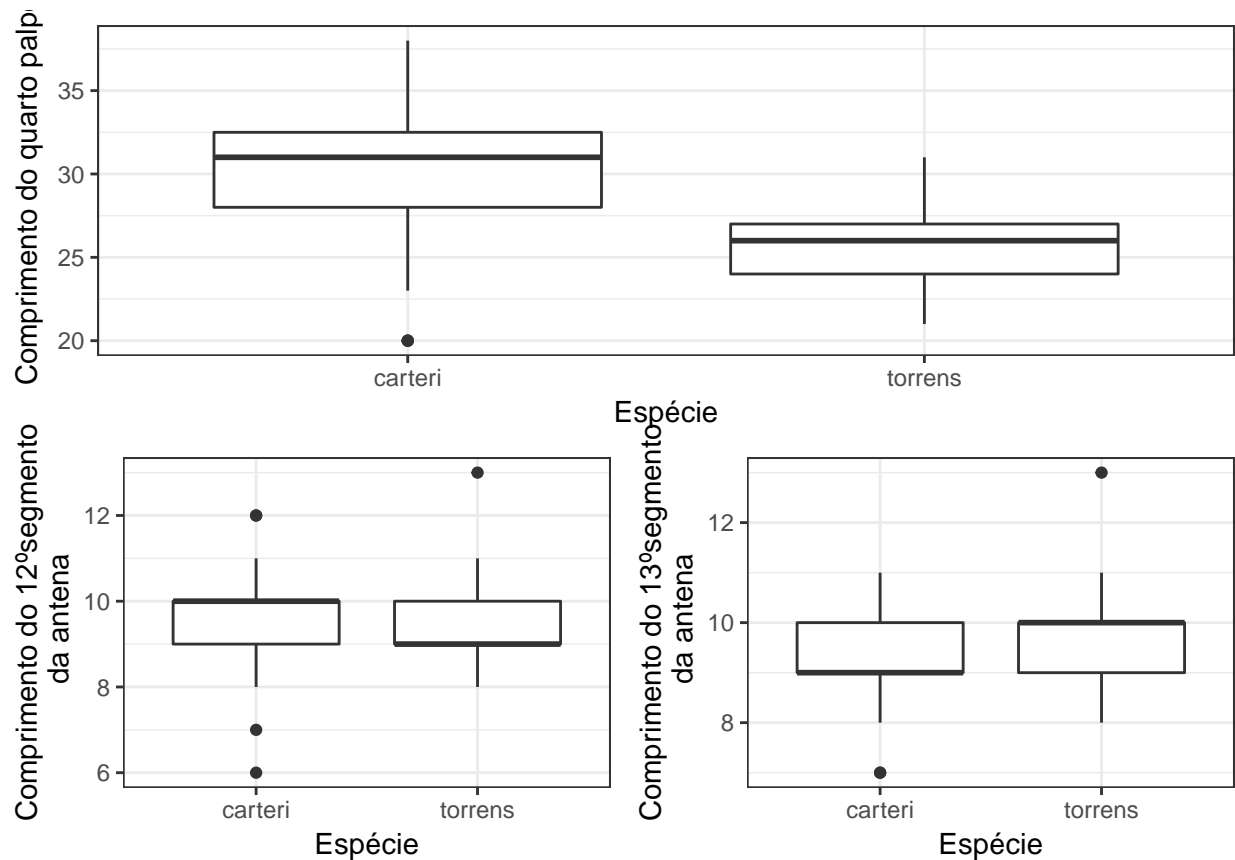
Table 6: Largura do terceiro palpo

	Especie	Media	DP	Var.	Minimo	CV	Mediana	Maximo
1	torrens	42.91	2.74	7.49	38.00	6.38	44.00	49.00
2	carteri	43.74	5.08	25.79	19.00	11.61	45.00	50.00

Table 7: Largura da asa



```
grid.arrange(graficos[[5]], graficos[[6]],
              graficos[[7]],
              layout_matrix = rbind(c(1,1),c(2,3)))
```



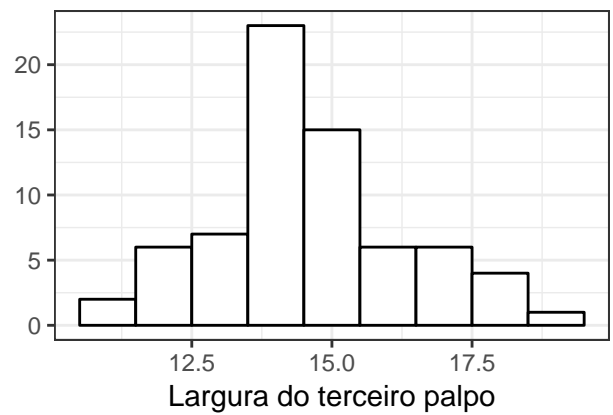
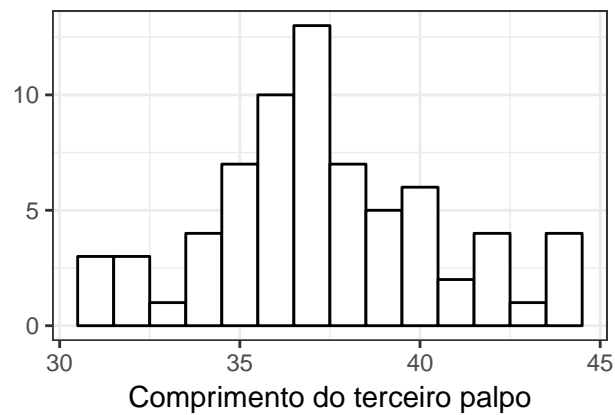
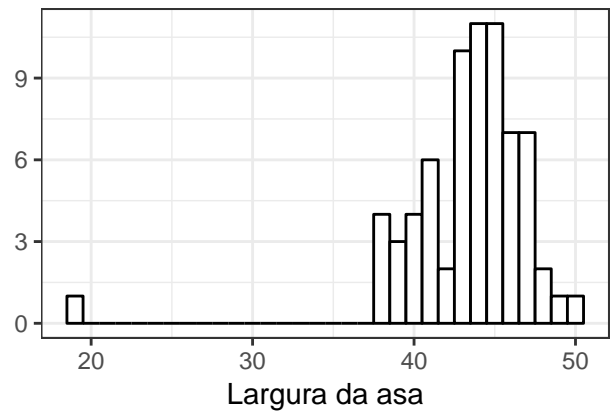
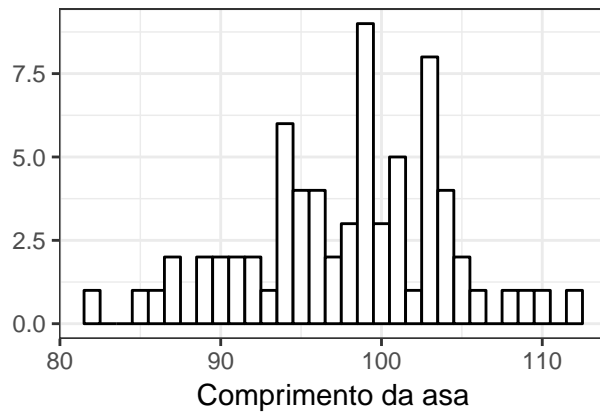
Histograma

```
##criando funcao para facilitar a criação dos boxplots
hist_moscas <- function(coluna){
  qplot(coluna,geom = "histogram",col = I("black"),fill = I("white"),
        binwidth = 1) + theme_bw()
}

graficos <- apply(dados[,2:8],2,hist_moscas)

for(i in 1:7)
  graficos[[i]] <- graficos[[i]] + labs(x = nomes_COL[i+1],y = NULL)

##print os boxplots
grid.arrange(graficos[[1]], graficos[[2]],
             graficos[[3]], graficos[[4]])
```



```
grid.arrange(graficos[[5]], graficos[[6]],
              graficos[[7]],
              layout_matrix = rbind(c(1,1),c(2,3)))
```

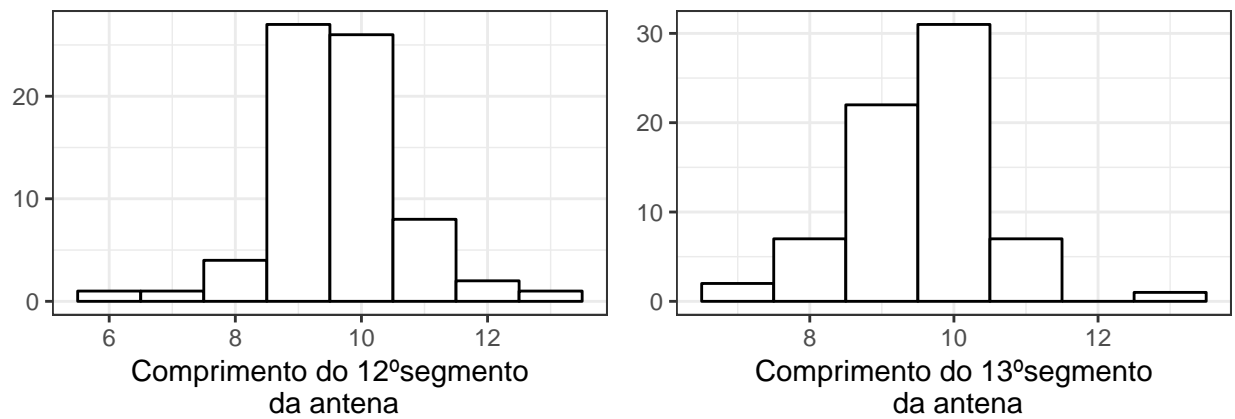
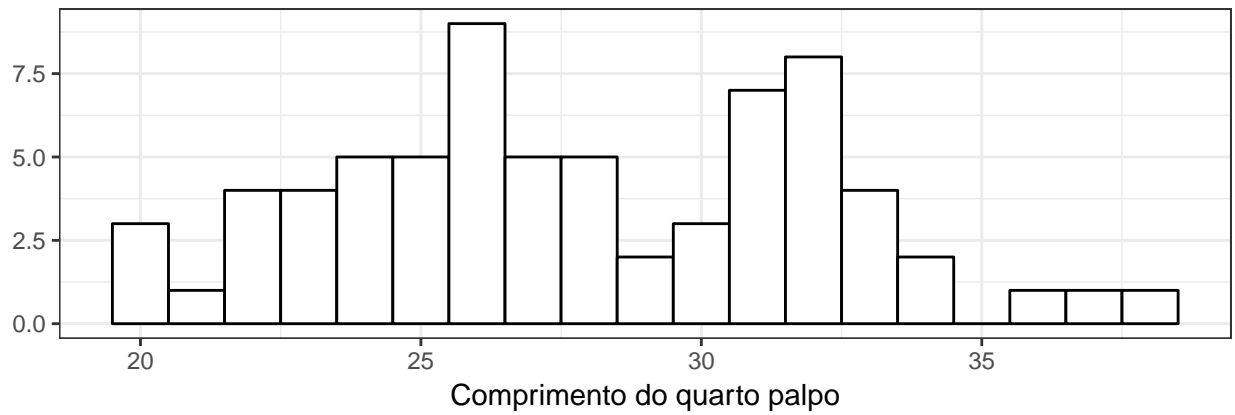
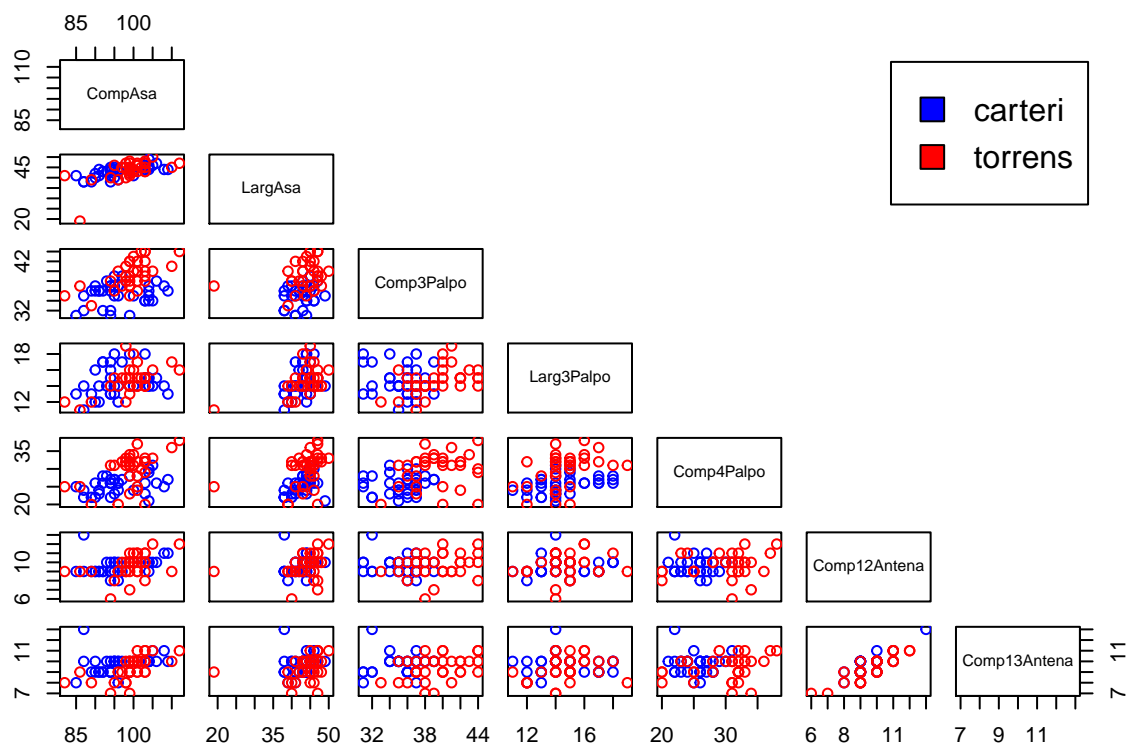


Diagrama Dispersao

```
cols <- character(nrow(dados))
cols[] <- "black"

cols[dados$Especie_fct == "carteri"] <- "red"
cols[dados$Especie_fct == "torrens"] <- "blue"
pairs(dados[,2:8],col=cols,upper.panel = NULL)
par(xpd = T)
legend("topright", legend = c(levels(dados$Especie_fct)),
      fill = c("blue","red"))
```

Distancia de Mahalanobis