possum R Documentation

Possum Measurements

Description

The `possum` data frame consists of nine morphometric measurements on each of 104 mountain brushtail possums, trapped at seven sites from Southern Victoria to central Queensland.

Usage

```
possum
```

Format

This data frame contains the following columns:

case

: observation number

site

: one of seven locations where possums were trapped

Pop

: a factor which classifies the sites as `Vic` Victoria, `other` New South Wales or Queensland

sex

: a factor with levels `f` female, `m` male

age

: age

hdlngth

: head length

skullw

: skull width

totlngth

: total length

taill

: tail length

footlgth

foot length

earconch

ear conch length

eye

distance from medial canthus to lateral canthus of right eye

chest

chest girth (in cm)

belly

belly girth (in cm)

Source

Lindenmayer, D. B., Viggers, K. L., Cunningham, R. B., and Donnelly, C. F. 1995. Morphological variation among columns of the mountain brushtail possum, Trichosurus caninus Ogilby (Phalangeridae: Marsupiala). Australian Journal of Zoology 43: 449-458.

Examples

```
boxplot(earconch~sex, data=possum)
pause()

sex <- as.integer(possum$sex)
oldpar <- par(oma=c(2,4,5,4))
pairs(possum[, c(9:11)], pch=c(0,2:7), col=c("red","blue"),
  labels=c("tail\nlength","foot\nlength","ear conch\nlength"))
chh <- par()$cxy[2]; xleg <- 0.05; yleg <- 1.04
oldpar <- par(xpd=TRUE)
legend(xleg, yleg, c("Cambarville", "Bellbird", "Whian Whian  ",
  "Byrangery", "Conondale  ","Allyn River", "Bulburin"), pch=c(0,2:7),
  x.intersp=1, y.intersp=0.75, cex=0.8, xjust=0, bty="n", ncol=4)
text(x=0.2, y=yleg - 2.25*chh, "female", col="red", cex=0.8, bty="n")
text(x=0.75, y=yleg - 2.25*chh, "male", col="blue", cex=0.8, bty="n")
par(oldpar)
pause()

sapply(possum[,6:14], function(x)max(x,na.rm=TRUE)/min(x,na.rm=TRUE))
pause()

here <- na.omit(possum$footlgth)
possum.prc <- princomp(possum[here, 6:14])
pause()

plot(possum.prc$scores[,1] ~ possum.prc$scores[,2],
  col=c("red","blue")[as.numeric(possum$sex[here])],
  pch=c(0,2:7)[possum$site[here]], xlab = "PC1", ylab = "PC2")
  # NB: We have abbreviated the axis titles
chh <- par()$cxy[2]; xleg <- -15; yleg <- 20.5
oldpar <- par(xpd=TRUE)
legend(xleg, yleg, c("Cambarville", "Bellbird", "Whian Whian  ",
  "Byrangery", "Conondale  ","Allyn River", "Bulburin"), pch=c(0,2:7),
  x.intersp=1, y.intersp=0.75, cex=0.8, xjust=0, bty="n", ncol=4)
text(x=-9, y=yleg - 2.25*chh, "female", col="red", cex=0.8, bty="n")
```

```
summary(possum.prc, loadings=TRUE, digits=2)
par(oldpar)
pause()

require(MASS)
here <- !is.na(possum$footlgth)
possum.lda <- lda(site ~ hdlngth+skullw+totlngth+ taill+footlgth+
  earconch+eye+chest+belly, data=possum, subset=here)
options(digits=4)
possum.lda$svd   # Examine the singular values
plot(possum.lda, dimen=3)
  # Scatterplot matrix - scores on 1st 3 canonical variates (Figure 11.4)
possum.lda
```