install.packages("psych")

install.packages("here")

require("psych")

require(here)

pairs.panels(iris)

here(iris)

getwd()

read.csv(here("data", "bird.sta.csv"))

dat\_bird <- data.frame(read.csv(here("data", "bird.sta.csv")))

read.csv(here("data", "hab.sta.csv"))

dat\_habitat <- data.frame(read.csv(here("data", "hab.sta.csv")))

head(dat\_bird)

dat\_all <- data.frame(merge(dat\_bird, dat\_habitat, by=c("basin", "sub", "sta")))

dat\_all

plot(ba.tot ~ elev, data = dat\_all)

sample(dat\_all$CEWA, 20)

cewa\_present\_absent <- as.numeric(dat\_all$CEWA > 1)

cewa\_present\_absent

plot(x = dat\_all$elev, y = cewa\_present\_absent)

plot(x = dat\_all$elev, y = cewa\_present\_absent)

curve(logistic\_midpoint\_slope(x, midpoint = 400, slope = 0.1), add = TRUE)

# Function to calculate the logistic parameter a given the slope and midpoint

get\_logistic\_param\_a = function(slope, midpoint)

{

b = slope / 4

return (-midpoint \* (slope / 4))

}

# Function to calculate the logistic parameter b given the slope

get\_logistic\_param\_b = function(slope)

{

return (slope / 4)

}

# Calculate the value of the logistic function at x, given the parameters a and b.

logistic = function(x, a, b)

{

val = exp(a + b \* x)

return(val / (1 + val))

}

# Calculate the value of the logistic function at x, given a slope and midpoint.

logistic\_midpoint\_slope = function(x, midpoint, slope)

{

b = get\_logistic\_param\_b(slope)

a = get\_logistic\_param\_a(slope, midpoint)

return(logistic(x, a, b))

}

plot(x = dat\_all$elev, y = cewa\_present\_absent)

curve(logistic\_midpoint\_slope(x, midpoint = 400, slope = -0.1), add = TRUE)

plot(x = dat\_all$elev, y = cewa\_present\_absent)

curve(logistic\_midpoint\_slope(x, midpoint = 400, slope = -0.005), add = TRUE)

plot(x = dat\_all$elev, y = cewa\_present\_absent)

curve(logistic\_midpoint\_slope(x, midpoint = 400, slope = -0.005), add = TRUE)

cewa\_present\_absent <- as.numeric(dat\_all$CEWA > 1)

cewa\_present\_absent

plot(x = dat\_all$elev, y = cewa\_present\_absent)

plot(x = dat\_all$elev, y = cewa\_present\_absent)

curve(logistic\_midpoint\_slope(x, midpoint = 400, slope = 0.1), add = TRUE)

recr\_present\_absent <- as.numeric(dat\_all$CBCH > 1)

recr\_present\_absent

plot(main = "Basal Area Impact on Chestnut-bk Chickadee Occurrence", x = dat\_all$ba.tot, y= recr\_present\_absent, xlab= "Total Basal Area", ylab= "Chickadee Occurrence")

curve(logistic\_midpoint\_slope(x, midpoint = 100, slope = 0.1), add = TRUE)