

הפונקציה בודקת האם קשר בין נתונים הביטים לשטח האתר.

יצרנו פונקציה נפרדת לבדיקת משתנה זה מכיוון שהוא קבוע בכל הבאפרים שנבדקו.

אם קיים קשר בין המשתנים היא מדפיסה גרף, אחרת היא מדפיסה פלט בהתאם עם הערך שלא עמד בתנאי

```
just_area <- function(b) {  
  ## looing for the relation in the area data  
  fit=lm(total_not_red~log(area),b)  
  r2=signif(summary(fit)$adj.r.squared)  
  p=signif(summary(fit)$coef[2,4], 5)  
  
  if(r2<0.5){x= print(paste0("the r2 value (", r2, ") of area / general species is too low"))  
  } else {  
    if (p>0.05) {x=print(paste0("the p value (", p, ") of area / general species is too high"))  
    } else {  
      x= ggplot(b, aes(x =log(area) , y = total_not_red))+  
        geom_point() +ylab("Species") + geom_smooth(method = 'loess') +  
        scale_x_continuous(name="log(area)", limits=c(9,17)) +  
        labs(title = "Ratio between the area size and the number of general species",  
             subtitle = paste("Adj R2 = ",signif(summary(fit)$adj.r.squared, 5),"Intercept =",signif(fit$coef[[1]],5 ),  
                              " slope =",signif(fit$coef[[2]], 5)," P =",signif(summary(fit)$coef[2,4], 5)))})  
  
      fit=lm(total_red~log(area),b)  
      r2=signif(summary(fit)$adj.r.squared)  
      p=signif(summary(fit)$coef[2,4], 5)  
  
      if(r2<0.5){x1= print(paste0("the r2 value (", r2, ") of area / red species is too low"))  
      } else {  
        if (p>0.05) {x1=print(paste0("the p value (", p, ") of area / red species is too high"))  
        } else {  
          x1= ggplot(b, aes(x =log(area) , y = total_red))+  
            geom_point() +ylab("Species") + geom_smooth(method = 'loess') +  
            scale_x_continuous(name="log(area)", limits=c(9,17)) +  
            labs(title = "Ratio between the area size and the number of red species",  
                 subtitle = paste("Adj R2 = ",signif(summary(fit)$adj.r.squared, 5),"Intercept =",signif(fit$coef[[1]],5 ),  
                                   " slope =",signif(fit$coef[[2]], 5)," P =",signif(summary(fit)$coef[2,4], 5)))})  
  
          fit=lm(total_richness~log(area),b)  
          r2=signif(summary(fit)$adj.r.squared)  
          p=signif(summary(fit)$coef[2,4], 5)  
  
          if(r2<0.5){x2= print(paste0("the r2 value (", r2, ") of area / all species is too low"))  
          } else {  
            if (p>0.05) {x2=print(paste0("the p value (", p, ") of area / all species is too high"))  
            } else {  
              x2= ggplot(b, aes(x =log(area) , y = total_not_red))+  
                geom_point() +ylab("Species") + geom_smooth(method = 'loess') +  
                scale_x_continuous(name="log(area)", limits=c(9,17)) +  
                labs(title = "Ratio between the area size and the number of all species",  
                     subtitle = paste("Adj R2 = ",signif(summary(fit)$adj.r.squared, 5),"Intercept =",signif(fit$coef[[1]],5 ),  
                                       " slope =",signif(fit$coef[[2]], 5)," P =",signif(summary(fit)$coef[2,4], 5)))})  
  
              t=list(x,x1,x2)  
              t  
            }  
          }  
        }  
      }  
    }  
  }  
}
```