# 逐步回归分析

library(MASS)

step\_model <- step(model\_lm, direction = "both")

summary(model\_lm)

# 获取预测值

predicted\_values <- predict(step\_model,newdata = data)

# 创建一个数据框，包含观测值和预测值

df <- data.frame(

observed = data$BIO,

predicted = predicted\_values

)

# 计算 R^2 动态值

r\_squared <- round(cor(df$observed, df$predicted)^2, 2)

# 绘制散点图并添加回归线和动态 R^2

library(ggplot2)

ggplot(df, aes(x = predicted, y = observed)) +

geom\_point(color = "black", size = 1) + # 添加散点

geom\_smooth(method = "lm", se = FALSE, color = "red") + # 添加回归线

annotate("text", x = max(df$predicted, na.rm = TRUE) \* -0.3,

y = max(df$observed, na.rm = TRUE) \* 0.9,

label = paste0(expression(r^2), " = ", r\_squared), size = 5) + # 动态 R^2

labs(x = "Predicted Value", y = "Observed Value",

title = "Observed vs Predicted") +

theme\_minimal(base\_size = 14) +

theme(panel.grid.minor = element\_blank())

warnings()