

Electronic Supplement

R code used to conduct statistical analyses and generate plots.

```
library(ggplot2)
library(cocor)

#Figure 1: Histogram of PLD counts
distance<-read.csv('Jeb Project/DataWithDistance.csv', stringsAsFactors = FALSE)
ggplot(data = distance, aes(x = log10(PLD))) +
  geom_histogram(binwidth=0.25, color= "black", fill="white")+
  scale_y_log10()

#Figure 2A, log PLD vs log Filtered Vector Distance
distance<-read.csv('/Volumes/Extreme SSD/DataWithDistance.csv', stringsAsFactors = FALSE)
fit <- lm((log10(FilteredVectorDistance+10000))~(log10(PLD+1)), data = distance)
summary(fit)
AIC(fit)

ggplot(data = distance, aes(x = log10(PLD+1), y = log10(FilteredVectorDistance+10000))) +
  geom_point() +
  stat_smooth(method = "lm", col = "red")

#Figure 2B, PLD vs Filtered Vector Distance PLD >10
distance<-read.csv('Jeb Project/DataWithDistanceIBD.csv', stringsAsFactors = FALSE)
distanceover10<- subset(distance, PLD > 10, select = c(Species:Vector_Standard_Deviation))
fit <- lm((log10(FilteredVectorDistance))~(log10(PLD))), data = distanceover10)
summary(fit)
AIC(fit)

ggplot(data = distanceover10, aes(x = log10(PLD), y = log10(FilteredVectorDistance))) +
  geom_point() +
  stat_smooth(method = "lm", col = "red")

#Figure 5A, Fst/km vs PLD > 10
#distance<-read.csv('/Volumes/Extreme SSD/DataWithDistance.csv', stringsAsFactors = FALSE)
distance<-read.csv('Jeb Project/DataWithDistance.csv', stringsAsFactors = FALSE)
distanceover10<- subset(distance, PLD > 10, select = c(Species:Vector_Standard_Deviation))
fit <- lm(Log_FST_max_km2~log10(PLD), data = distanceover10)
summary(fit)
AIC(fit)

ggplot(data = distanceover10, aes(x = log10(PLD), y = Log_FST_max_km2)) +
  geom_point() +
  stat_smooth(method = "lm", col = "red")+
  labs(y= "log10(Fst/km)")
```

```
distanceover10$PLD <- log10(distanceover10$PLD+1)
distanceover10$Dist<- log10(distanceover10$FilteredVectorDistance)
cocor(~Log_FST_max_km2 + PLD | Log_FST_max_km2 + Dist, data = distanceover10)

#Figure 5B, Fst/km vs FilteredVectorDistance PLD > 10
#distance<-read.csv('/Volumes/Extreme SSD/DataWithDistance.csv', stringsAsFactors = FALSE)
distance<-read.csv('Jeb Project/DataWithDistance.csv', stringsAsFactors = FALSE)
distanceover10<- subset(distance, PLD > 10, select = c(Species:Vector_Standard_Deviation))
fit <- lm(Log_FST_max_km2~log10(FilteredVectorDistance), data = distanceover10)
summary(fit)
AIC(fit)

ggplot(data = distanceover10, aes(x = log10(FilteredVectorDistance), y = Log_FST_max_km2))
+
  geom_point() +
  stat_smooth(method = "lm", col = "red")+
  labs(y= "log10(Fst/km)")

#Figure 5C, IBD vs PLD > 10
#distance<-read.csv('/Volumes/Extreme SSD/DataWithDistanceIBD.csv', stringsAsFactors =
FALSE)
distance<-read.csv('Jeb Project/DataWithDistanceIBD.csv', stringsAsFactors = FALSE)
distanceover10<- subset(distance, PLD > 10, select = c(Species:Vector_Standard_Deviation))
fit <- lm(Log_IBD_Slope2~(log10(PLD)), data = distanceover10)
summary(fit)
AIC(fit)

ggplot(data = distanceover10, aes(x = log10(PLD), y = Log_IBD_Slope2)) +
  geom_point() +
  stat_smooth(method = "lm", col = "red")+
  labs(y= "log10(IBD Slope)")

#Figure 5D, IBD vs Filtered Vector Distance, PLD > 10
#distance<-read.csv('/Volumes/Extreme SSD/DataWithDistanceIBD.csv', stringsAsFactors =
FALSE)
distance<-read.csv('Jeb Project/DataWithDistanceIBD.csv', stringsAsFactors = FALSE)
distanceover10<- subset(distance, PLD > 10, select = c(Species:Vector_Standard_Deviation))
fit <- lm(Log_IBD_Slope2~(log10(FilteredVectorDistance)), data = distanceover10)
summary(fit)
AIC(fit)

ggplot(data = distanceover10, aes(x = log10(FilteredVectorDistance), y = Log_IBD_Slope2)) +
  geom_point() +
  stat_smooth(method = "lm", col = "red")+
  labs(y= "log10(IBD Slope)")
```

```
distanceover10$PLD <- log10(distanceover10$PLD+1)
distanceover10$Dist<- log10(distanceover10$FilteredVectorDistance)
cocor(~Log_IBD_Slope2 + PLD | Log_IBD_Slope2 + Dist, data = distanceover10)

#Supplement Figure S3A, Fst/km vs MonthVectorDistance, PLD > 10
distance<-read.csv('Jeb Project/DataWithDistance.csv', stringsAsFactors = FALSE)
distanceover10<- subset(distance, PLD > 10, select = c(Species:MonthVectorStd))
fit <- lm(Log_FST_max_km2~log10(MonthVectorDistance), data = distanceover10)
summary(fit)
AIC(fit)

ggplot(data = distanceover10, aes(x = log10(MonthVectorDistance), y = Log_FST_max_km2)) +
  geom_point() +
  stat_smooth(method = "lm", col = "red")+
  labs(y= "log10(Fst/km)")

distanceover10$PLD <- log10(distanceover10$PLD+1)
distanceover10$Dist<- log10(distanceover10$FilteredVectorDistance)
distanceover10$Dist2<- log10(distanceover10$MonthVectorDistance)
cocor(~Log_FST_max_km2 + PLD | Log_FST_max_km2 + Dist2, data = distanceover10)
cocor(~Log_FST_max_km2 + Dist | Log_FST_max_km2 + Dist2, data = distanceover10)

#Supplement Figure S3B, IBD Slope vs MonthVectorDistance, PLD > 10
distance<-read.csv('Jeb Project/DataWithDistanceIBD.csv', stringsAsFactors = FALSE)
distanceover10<- subset(distance, PLD > 10, select = c(Species:MonthVectorStd))
fit <- lm(Log_IBD_Slope2~log10(MonthVectorDistance), data = distanceover10)
summary(fit)
AIC(fit)

ggplot(data = distanceover10, aes(x = log10(MonthVectorDistance), y = Log_IBD_Slope2)) +
  geom_point() +
  stat_smooth(method = "lm", col = "red")+
  labs(y= "log10(IBD Slope)")

distanceover10$PLD <- log10(distanceover10$PLD+1)
distanceover10$Dist<- log10(distanceover10$FilteredVectorDistance)
distanceover10$Dist2<- log10(distanceover10$MonthVectorDistance)
cocor(~Log_IBD_Slope2 + PLD | Log_IBD_Slope2 + Dist2, data = distanceover10)
cocor(~Log_IBD_Slope2 + Dist | Log_IBD_Slope2 + Dist2, data = distanceover10)

#Supplement Figure S4A, Fst/km vs PLD full dataset
distance<-read.csv('Jeb Project/DataWithDistance.csv', stringsAsFactors = FALSE)
fit <- lm(Log_FST_max_km2~log10(PLD+1), data = distance)
summary(fit)
AIC(fit)
```

```
ggplot(data = distance, aes(x = log10(PLD+1), y = Log_FST_max_km2)) +
  geom_point() +
  stat_smooth(method = "lm", col = "red")+
  labs(y= "log10(Fst/km)")

#Supplement Figure S4B, IBD vs PLD full dataset
distance<-read.csv('Jeb Project/DataWithDistanceIBD.csv', stringsAsFactors = FALSE)
fit <- lm(Log_IBD_Slope2~(log10(PLD+1)), data = distance)
summary(fit)
AIC(fit)

ggplot(data = distance, aes(x = log10(PLD+1), y = Log_IBD_Slope2)) +
  geom_point() +
  stat_smooth(method = "lm", col = "red")+
  labs(y= "log10(IBD Slope)")

#Supplement Figure S5A, Fst/km vs FilteredMeanDistance, PLD > 10
distance<-read.csv('Jeb Project/DataWithDistance.csv', stringsAsFactors = FALSE)
distanceover10<- subset(distance, PLD > 10, select = c(Species:MonthVectorStd))
fit <- lm(Log_FST_max_km2~log10(FilteredMeanDistance), data = distanceover10)
summary(fit)
AIC(fit)

ggplot(data = distanceover10, aes(x = log10(FilteredMeanDistance), y = Log_FST_max_km2))
+
  geom_point() +
  stat_smooth(method = "lm", col = "red")+
  labs(y= "log10(Fst/km)")

distanceover10$PLD <- log10(distanceover10$PLD+1)
distanceover10$Dist<- log10(distanceover10$FilteredVectorDistance)
distanceover10$Dist3<- log10(distanceover10$FilteredMeanDistance)
cocor(~Log_FST_max_km2 + PLD | Log_FST_max_km2 + Dist3, data = distanceover10)

#Supplement Figure S5B, IBD Slope vs FilteredMeanDistance, PLD > 10
distance<-read.csv('Jeb Project/DataWithDistanceIBD.csv', stringsAsFactors = FALSE)
distanceover10<- subset(distance, PLD > 10, select = c(Species:MonthVectorStd))
fit <- lm(Log_IBD_Slope2~log10(FilteredMeanDistance), data = distanceover10)
summary(fit)
AIC(fit)

ggplot(data = distanceover10, aes(x = log10(FilteredMeanDistance), y = Log_IBD_Slope2)) +
  geom_point() +
  stat_smooth(method = "lm", col = "red")+
```

```
labs(y= "log10(IBD Slope)")

distanceover10$PLD <- log10(distanceover10$PLD+1)
distanceover10$Dist<- log10(distanceover10$FilteredVectorDistance)
distanceover10$Dist3<- log10(distanceover10$FilteredMeanDistance)
cocor(~Log_IBD_Slope2 + PLD | Log_IBD_Slope2 + Dist3, data = distanceover10)

#Supplement Figure S6A, Fst/km vs FilteredVectorStd, PLD > 10
distance<-read.csv('Jeb Project/DataWithDistance.csv', stringsAsFactors = FALSE)
distanceover10<- subset(distance, PLD > 10, select = c(Species:MonthVectorStd))
fit <- lm(Log_FST_max_km2~log10(FilteredVectorStd), data = distanceover10)
summary(fit)
AIC(fit)

ggplot(data = distanceover10, aes(x = log10(FilteredVectorStd), y = Log_FST_max_km2)) +
  geom_point() +
  stat_smooth(method = "lm", col = "red")+
  labs(y= "log10(Fst/km)")

distanceover10$PLD <- log10(distanceover10$PLD+1)
distanceover10$Dist<- log10(distanceover10$FilteredVectorDistance)
distanceover10$Dist4<- log10(distanceover10$FilteredVectorStd)
cocor(~Log_FST_max_km2 + PLD | Log_FST_max_km2 + Dist4, data = distanceover10)

#Supplement Figure S6B, IBD Slope vs FilteredVectorStd, PLD > 10
distance<-read.csv('Jeb Project/DataWithDistanceIBD.csv', stringsAsFactors = FALSE)
distanceover10<- subset(distance, PLD > 10, select = c(Species:MonthVectorStd))
fit <- lm(Log_IBD_Slope2~log10(FilteredVectorStd), data = distanceover10)
summary(fit)
AIC(fit)

ggplot(data = distanceover10, aes(x = log10(FilteredVectorStd), y = Log_IBD_Slope2)) +
  geom_point() +
  stat_smooth(method = "lm", col = "red")+
  labs(y= "log10(IBD Slope)")

distanceover10$PLD <- log10(distanceover10$PLD+1)
distanceover10$Dist<- log10(distanceover10$FilteredVectorDistance)
distanceover10$Dist4<- log10(distanceover10$FilteredVectorStd)
cocor(~Log_IBD_Slope2 + PLD | Log_IBD_Slope2 + Dist4, data = distanceover10)

#Supplement Figure S7A, Filtered mean distance vs PLD
distance<-read.csv('Jeb Project/DataWithDistance.csv', stringsAsFactors = FALSE)
distanceover10<- subset(distance, PLD > 10, select = c(Species:MonthVectorStd))
fit <- lm(log10(FilteredMeanDistance)~log10(PLD), data = distanceover10)
summary(fit)
```

AIC(fit)

```
ggplot(data = distanceover10, aes(x = log10(PLD), y = log10(FilteredMeanDistance))) +  
  geom_point() +  
  stat_smooth(method = "lm", col = "red")
```

#Supplement Figure S7B, Filtered vector std vs PLD

```
distance<-read.csv('Jeb Project/DataWithDistance.csv', stringsAsFactors = FALSE)  
distanceover10<- subset(distance, PLD > 10, select = c(Species:MonthVectorStd))  
fit <- lm(log10(FilteredVectorStd)~log10(PLD), data = distanceover10)  
summary(fit)  
AIC(fit)
```

```
ggplot(data = distanceover10, aes(x = log10(PLD), y = log10(FilteredVectorStd))) +  
  geom_point() +  
  stat_smooth(method = "lm", col = "red")
```

#Supplement Figure S7C, month Filtered vector distance vs PLD

```
distance<-read.csv('Jeb Project/DataWithDistance.csv', stringsAsFactors = FALSE)  
distanceover10<- subset(distance, PLD > 10, select = c(Species:MonthVectorStd))  
fit <- lm(log10(MonthVectorDistance)~log10(PLD), data = distanceover10)  
summary(fit)  
AIC(fit)
```

```
ggplot(data = distanceover10, aes(x = log10(PLD), y = log10(MonthVectorDistance))) +  
  geom_point() +  
  stat_smooth(method = "lm", col = "red")+  
  xlim(1.00, 2.00)
```

#Supplement Figure S8, Fst/km vs IBD Slope

```
distance<-read.csv('Jeb Project/DataWithDistanceIBD.csv', stringsAsFactors = FALSE)  
distanceover10<- subset(distance, PLD > 10, select = c(Species:MonthVectorStd))  
fit <- lm(Log_IBD_Slope2~Log_FST_max_km2, data = distanceover10)  
summary(fit)  
AIC(fit)
```

```
ggplot(data = distanceover10, aes(x = Log_FST_max_km2, y = Log_IBD_Slope2)) +  
  geom_point() +  
  stat_smooth(method = "lm", col = "red")+  
  labs(x= "log10(Fst/km)", y= "log10(IBD Slope)")
```

#AIC Tables

#Filtered Vector Distance+PLD vs FST/km > 10

```
distance<-read.csv('Jeb Project/DataWithDistance.csv', stringsAsFactors = FALSE)  
distance<- subset(distance, PLD > 10, select = c(Species:Vector_Standard_Deviation))
```

```
fit <- lm(Log_FST_max_km2~(log10(FilteredVectorDistance)+log10(PLD)), data = distance)
summary(fit)
AIC(fit)

#Fst/km, PLD + Filtered Vector Distance > 10, interaction
distance<-read.csv('Jeb Project/DataWithDistance.csv', stringsAsFactors = FALSE)
distance<- subset(distance, PLD > 10, select = c(Species:Vector_Standard_Deviation))
fit <-
lm(Log_FST_max_km2~(log10(FilteredVectorDistance)+log10(PLD)+log10(FilteredVectorDistance):log10(PLD)), data = distance)
summary(fit)
AIC(fit)

#IBD, PLD + Filtered Vector Distance > 10
distance<-read.csv('Jeb Project/DataWithDistanceIBD.csv', stringsAsFactors = FALSE)
distance<- subset(distance, PLD > 10, select = c(Species:Vector_Standard_Deviation))
fit <- lm(Log_IBD_Slope2~(log10(FilteredVectorDistance)+log10(PLD)), data = distance)
summary(fit)
AIC(fit)

#IBD Slope, PLD + Filtered Vector Distance > 10, interaction
distance<-read.csv('Jeb Project/DataWithDistanceIBD.csv', stringsAsFactors = FALSE)
distance<- subset(distance, PLD > 10, select = c(Species:Vector_Standard_Deviation))
fit <-
lm(Log_IBD_Slope2~(log10(FilteredVectorDistance)+log10(PLD)+log10(FilteredVectorDistance):log10(PLD)), data = distance)
summary(fit)
AIC(fit)
```