PerMANOVA (adonis, vegan)

Codes

##script to read a transposed csv file ##

read.tcsv = function(file, header=TRUE, sep=",", ...) {

n = max(count.fields(file, sep=","), na.rm=TRUE)

x = readLines(file)

.splitvar = function(x, sep, n) {

var = unlist(strsplit(x, split=sep))

length(var) = n

return(var)

}

x = do.call(cbind, lapply(x, .splitvar, sep=sep, n=n))

x = apply(x, 1, paste, collapse=sep)

out = read.csv(text=x, sep=sep, header=header, ...)

return(out)

}

### load environmental data ###

env<-read.csv(‘~/env.csv’)

### create separate dataframes for 16s w/ and w/o env data, ITS w/ and w/o env data ###

env2<-env2[-c(25,41,44,45,98,99),]

fenv1<-env[-c(24,27,29,33,48,49,64,74,91,95),]

fenv2<-env[-c(24,25,27,29,33,41,44,45,48,49,64,74,91,95,98,99),]

### load a transposed Bacterial .csv file ###

bacdata<-read.tcsv('~/Desktop/Thesis/R/Adonis/transposed\_Bacrare\_70000.csv')

### call Adonis function (land use nested within city) and conduct post-hoc tukey ###

bacperm.nested<-adonis(bacdata~city/trt, method="bray", data=env)

### remove samples without env data, run adonis with covariates

bacdata.env<-bacdata[-c(25,41,44,45,98,99),]

bacperm.nestedco<-adonis(bacdata.env~city/trt+ph+humus+orgC+caco3+al.k20+al.p2o5+nh4.n+no3.n+tot.n+k.a, method="bray", data=env2)

### load an Archaeal .csv file ###

archdata<-read.csv(‘~/archaeal\_communityRare.csv’)

### remove samples without env data, run adonis with covariates

archdata<-archdata[-c(25,41,44,45,98,99),]

### call Adonis function (land use nested within city) and conduct post-hoc tukey ###

archperm.nested<-adonis(archdata~city/trt+ph+humus+orgC+caco3+al.k20+al.p2o5+nh4.n+no3.n+tot.n+k.a, method="bray", data=env2)

### load fungal .csv file, remove samples with no sup data

fundata<-read.csv('~/Desktop/Thesis/R/Adonis/fungi\_rarefaction1\_053016.csv')

fundata.evn2<-fundata[-c(24,37,40,41,88,89),]

### call Adonis function (land use nested within city) ###

funperm.nested1<-adonis(fundata~city/trt, method="bray", data=fenv1)

funperm.nested2<-adonis(fundata.evn2~city/trt+ph+humus+orgC+caco3+al.k20+al.p2o5+nh4.n+no3.n+tot.n+k.a, method="bray", data=fenv2)