Appendix 1.

model {

for (i in 1:sites){

spcv[i,1:S]~dmnorm(mu[],TAU[,])

}

for (j in 1:S) {

mu[j]<-alpha+beta[1]\*range[j]+beta[2]\*bs[j] # range = geographic range, bs = body size

}

for (k in 1:2){

beta[k] ~ ddexp(0, tau.beta) #prior for model coefficients

}

tau.beta<-lambda\*tau.beta.2 #hyperprior for model coefficient

tau.beta.2~dgamma(0.001,0.001)

lambda~dgamma(0.001,0.001)

alpha~dnorm(0,0.0001)

TAU[1:S,1:S] ~ dwish(invA[,],S)

predicted[1:S]~dmnorm(mu[],TAU[,]) #Posterior predictive check