Appendix 2####

JAGS language description of Florida Sandhill Crane BBS trend model

```
# Data input as list include:
# count = Sandhill crane counts per route as matrix of route ID (rows) x year
(columns).
# nrts = number of routes.
# styrnum = start year as an integer.
# enyrnum = end year as an integer.
# medyr = median of yr vector.
# div = vector of integers representing each route's PDSI division.
# PDSI = winter PDSI values as matrix of Florida PDSI divisions (rows) x year (columns).
# PDSIlag = 1-year lagged winter PDSI values (i.e., from year preceding survey) as matrix
of Florida PDSI divisions (rows) x year (columns).
# deltaland = percent land cover change for each route for one of six cover types
(grassland, wetland, woodland, scrub, urban or other).

model{
  #Overdispersed poisson model:
    for (i in 1:nrts){
    for (t in styrnum:enyrnum){
      log(lambda[i,t]) <- S[i]+beta[i]*(t-medyr)+gamma*PDSI[div[i],t]+
                          gammalag*PDSIlag[div[i],t]+eps[i,t]
      count[i,t] ~ dpois(lambda[i,t])
      eps[i,t] ~ dnorm(0, tau.epsilon)
    }
    }
  #beta[i] sub model:
    for(i in 1:nrts){
      beta[i] <- b[i] #for 1996- and 1985-2016 models without land cover change effect
```

```
      #beta[i] <- phi*deltaland[i] + b[i] #for 1985-2016 models with landcover change
                            effect
      b[i] ~ dnorm(B1,tau.b)
    }
  #Priors:
    for (i in 1:nrts){
      S[i] ~ dunif(-4,4)
    }
    tau.b ~ dgamma(0.001,0.001)
    phi ~ dnorm(0,0.01)
    B1 ~ dnorm(0,0.01)
    gamma ~ dnorm(0,0.001)
    gammalag ~ dnorm(0,0.001)
    tau.epsilon ~dgamma(0.001,0.001)
}#end model
```